

## **3.5 Group Comments and Responses**



Sent via email to: [DPEIRcomments@water.ca.gov](mailto:DPEIRcomments@water.ca.gov)

April 20, 2012

## G ACWA1

Mary Ann Hadden, Staff Environmental Scientist  
DWR, Division of Flood Management  
c/o MWH  
3321 Power Inn Road, Suite 300  
Sacramento, CA 95826

Subject: Comment Letter – 2012 Central Valley Flood Protection Plan Draft Program  
Environmental Impact Report

Dear Ms. Hadden,

G\_ACWA1-01 Association of California Water Agencies (ACWA) appreciates this opportunity to provide comments 2012 Central Valley Flood Protection Plan (CVFPP) Draft Program Environmental Impact Report (DPEIR). ACWA represents nearly 440 water systems throughout the state that are collectively responsible for supplying over 90 percent of the water necessary to meet California's overall water needs. California's water agencies are committed to integrated water management as the answer to a sustainable future and are working together and with state and federal water resource agencies to address the full range of water management challenges.

G\_ACWA1-02 ACWA and its member agencies have worked closely with the Department of Water Resources as part of the last updates of the California Water Plan to support and help define a comprehensive vision for integrated water management. We are therefore, somewhat disappointed that the 2012 Central Valley Flood Protection Plan does not incorporate a more opportunities to integrate water supply reliability improvements as part of the flood protection plan. Although flood management challenges are daunting, these water resources also present many opportunities for integrated water resource management.

G\_ACWA1-03 Even if the proposed program for the CVFPP cannot be redefined to adopt this more comprehensive and integrated water resources management approach, we believe that the DPEIR could include and evaluate an alternative that does so. Unfortunately, all of the CVFPP alternatives are seem to be structured to get the water to the ocean as quickly as possible. Some alternatives widen the bypass corridors, and one alternative would re-allocate storage in the reservoirs to flood control by lowering the rule curves. But none of the alternatives address enhancement of water supply in any meaningful way. Although there is an attempt to identify groundwater supply benefits associated with widening the bypasses, the recharge potential is unlikely to be significant since the bypasses are located in the bottom of the system where they are surrounded by rice fields in heavy clay soils with poor percolation characteristics.

**Enhanced Multi-objective Flood and Water Resource Management Alternative**

G\_ACWA1-04 The CVFPP DPEIR should incorporate an alternative that is designed to conserve floodwaters and respond to the more challenging hydrologic realities of climate change and resulting loss of snow pack. This alternative should be structured around integrated water management benefits. This alternative should also address opportunities for new on-stream storage, and enhanced groundwater recharge on suitable alluvial soils.

We appreciate your consideration of ACWA's comments. If you have questions, please don't hesitate to contact me.

Sincerely,



David Bolland  
Senior Regulatory Advocate

**Association of California Water Agencies,  
David E. Bolland, Senior Regulatory Advocate**

***Response***

***G\_ACWA1-01***

DWR and the Board appreciate ACWA's participation in the CVFPP DPEIR public review process. DWR and the Board have coordinated with ACWA and many of its member agencies in the past and will continue to do so in the future. The comment is an introductory statement that provides general information on ACWA. The comment does not raise specific questions or information regarding the CVFPP or the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

***G\_ACWA1-02***

DWR appreciates the participation of ACWA and its member agencies in the most recent updates to the California Water Plan; however, as discussed in Master Response 7, the CVFPP must follow legislative direction that focusses the plan on flood protection. The Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction for the CVFPP to "...include a description of both structural and nonstructural means for improving the performance and elimination of deficiencies of levees, weirs, bypasses, and facilities, including facilities of the State Plan of Flood Control, and, wherever feasible, meet multiple objectives..." (CWC Section 9616(a)). The legislation further identifies 14 objectives, two of which address water supply and groundwater recharge (CWC Sections 9616(a)(3) and 9616(a)(14)).

The CVFPP includes a high-level discussion on integrating water supply benefits with flood management improvements. The SSIA elements focus on public safety and improvement of flood management, consistent with the legislative direction and CVFPP primary goal; however, implementing these elements could improve water management because expanding floodways and the bypass system could improve the flexibility of reservoir operations and increase in-channel groundwater recharge. The SSIA describes potential opportunities for integrating water supply benefits with proposed flood management actions, but it does not include specific project recommendations related to water supply because of the need for future site-specific proposals and analyses. During post-adoption activities (regional flood management planning and development of basin-wide feasibility studies), additional details will be developed, including specific

water management features as part of multi-benefit projects, in collaboration with interested local and regional agencies and organizations.

DWR believes that the approach of focusing the CVFPP on flood management issues is consistent with the Legislature's intent as expressed in the Central Valley Flood Protection Act of 2008, and that including elements that provide a greater focus on water supply is not necessary. For additional details, see Master Response 7.

### **G\_ACWA1-03**

As stated in Master Response 24, CEQA requires that an EIR, in addition to analyzing the environmental effects of a proposed project, consider and analyze project alternatives that would reduce adverse environmental impacts (PRC Section 21061; *CALFED Proceedings* at 1143, 1163).

Section 15126.6 of the CEQA Guidelines indicates that an EIR must "describe a range of reasonable alternatives to the project ... which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. ..." An EIR need not consider every conceivable alternative to a project or alternatives that are infeasible. (*Id.*; *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 574 (*Goleta*)). "In determining the nature and scope of alternatives to be examined in an EIR, the Legislature has decreed that local agencies shall be guided by the doctrine of 'feasibility.'" *Id.* at 565. CEQA defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors." (PRC Section 21061.1; see also CEQA Guidelines Section 15364.)

"There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason." CEQA Guidelines Section 15126.6(a). The rule of reason "requires the EIR to set forth only those alternatives necessary to permit a reasoned choice" and to "examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project." CEQA Guidelines Section 15126.6(f). An EIR does not have to consider alternatives "whose effect cannot be reasonably ascertained and whose implementation is remote and speculative." CEQA Guidelines Section 15126.6(f)(3). Further, "an EIR need not study in detail an alternative that is infeasible or that the lead agency has reasonably determined cannot achieve the project's underlying fundamental purpose." *CALFED Proceedings, supra*, at 1165 (citing and quoting *Goleta, supra*, at 574 ("a project alternative which cannot be feasibly accomplished need not be extensively considered").) Further, "a lead agency may structure its EIR alternative analysis around a reasonable

definition of underlying purpose and need not study alternatives that cannot achieve that basic goal.” *CALFED Proceedings, supra*, at 1166.

The DPEIR evaluated a reasonable range of alternatives (seven were considered and five received full analysis, and a sixth alternative is included in the FPEIR for the non-CEQA purpose of helping support a future vegetation variance application to USACE) (see Chapter 5.0, “Alternatives”). The DPEIR explained how additional alternatives were screened and the basis for eliminating some alternatives from more detailed consideration. The scope of the alternatives analysis in the DPEIR was sufficient to “foster informed decision making and public participation.” Attachment 7, “Plan Formulation Report,” in CVFPP Volume II provides additional information regarding the foundational development of alternatives presented in the DPEIR.

Several commenters specifically requested analysis of an alternative that includes the expansion or construction of new upstream reservoirs. As demonstrated in Master Response 10 (text provided below), potential development of upstream storage facilities does not offer a feasible alternative to floodplain conveyance and/or storage in relation to the CVFPP. As a result, CEQA does not require that such an alternative be included. For additional details, see Master Response 24.

The comment does not provide any evidence that the requested water supply-focused alternative would reduce adverse environmental impacts (PRC Section 21061).

Master Response 10 addresses the feasibility of new reservoirs (from the aspect of both water supply and flood management) as part of the CVFPP. As stated in Master Response 10, in developing the CVFPP and formulating the SSIA, DWR considered various forms of storage for flood management, including operational changes to existing reservoirs with flood storage, new or expanded flood storage in reservoirs, and storage in floodplains. Specifically, one of the preliminary approaches—Enhance Flood System Capacity—included enlarging the flood storage allocation of several multipurpose reservoirs to improve management of flood risks on lands protected by the SPFC. This evaluation found potential benefits from and opportunities for reservoir flood storage and operational changes, such as improving flexibility in managing hydrologic changes (such as climate change) and potentially offsetting the hydraulic effects of certain system improvements on downstream reaches. At the same time, these analyses addressed both the physical limitations of these opportunities and the potential negative effects of increasing flood-storage allocations on water supply and other beneficial uses. The analyses of reservoir storage and flood operations that were conducted in support of the 2012 CVFPP are

described in Attachment 8B in Appendix A, “Central Valley Flood Protection Plan.”

Storage elements ultimately retained in the SSIA are based on preliminary systemwide analyses conducted for the 2012 CVFPP, legislative direction for the CVFPP, and the findings of prior and ongoing studies. Among those studies are ongoing surface storage investigations and prior local, State, and federal studies such as the Shasta Lake Water Resources Investigation, North-of-the-Delta Offstream Storage (Sites Reservoir), In-Delta Storage Program, Los Vaqueros Reservoir Expansion, and Upper San Joaquin River Basin Storage Investigation (Temperance Flat Reservoir). However, no new site-specific investigations of surface storage were included in the systemwide analyses conducted to support the 2012 CVFPP.

In the 2012 CVFPP, the SSIA includes coordinated reservoir operations aimed at making the most efficient and effective use of current flood storage allocations in existing reservoirs, and implementation of the authorized Folsom Dam Raise (see Section 3.5.4 of the CVFPP). These SSIA storage elements appropriately reflect the conceptual level of detail and systemwide focus of the 2012 CVFPP, without precluding future consideration of new or expanded storage by the State or local agencies. At this time, the SSIA does not include new reservoirs or expansion of storage (other than at Folsom Dam) solely for the purpose of flood management; however, DWR will continue to consider flood management in the context of, and as an objective of, its ongoing multi-benefit surface storage investigations and systemwide reoperation studies. Should these State investigations or other related efforts by local or federal agencies identify flood management as a component of a feasible reservoir storage project, this may be reflected in future updates to the CVFPP.

During the early and mid-20th century, most of the major rivers and tributaries draining into the Central Valley were dammed, providing both intentional and incidental flood management benefits. The aggregate benefit of these reservoirs to flood management has been substantial, and has contributed to the success of the existing flood system in reducing or avoiding damage from major flood events during the past century. However, California’s topography and geology limit opportunities for reservoir construction, and most of the feasible locations have already been developed with the existing major dams (e.g., Shasta, Oroville, Folsom). The remaining opportunities are much more limited.

Specifically, unlike the situation that existed at the beginning of the 20th century, only a few remaining dam sites, spread throughout the Central Valley watersheds, offer the potential to provide large volumes of flood storage capacity. Other than for a few specifics, such as raising Shasta Dam

or constructing Sites Reservoir, commenters on this topic did not provide a more detailed proposal or recommendation for implementing upstream storage projects. In particular, commenters provided no specific information regarding the feasibility of using an upstream-reservoir approach to meet the requirements of SB 5.

DWR recognizes the importance of developing additional water storage capacity in California to support an increasing population, to help compensate for the anticipated loss of snowpack storage as a result of climate change, and to maintain the important role of Central Valley agriculture for the nation and the world. For these reasons, multipurpose reservoir projects will likely continue to be proposed and, if successful, may help to meet needs for flood storage capacity.

However, these proposals face daunting challenges. Despite their benefits, new or expanded reservoirs generally face considerable opposition given their environmental effects, costs, perceived risks, and other factors. Also, environmental laws established mostly in the 1970s now apply to these proposals. Among these laws is the requirement under CWA Section 404 that any project affecting waters of the United States can be approved only if it is demonstrated to be the least environmentally damaging practicable alternative. Many other laws also present permitting challenges.

It is significant that no new major onstream reservoir has been constructed in the Central Valley watershed since New Melones Dam was completed in 1978. The Auburn Dam project, which commenced construction in 1968, was never completed because of several factors, including its cost, geologic problems with the site, and potential harm to recreational and ecological values. Recently, successful projects have consisted largely of projects to provide offstream storage (such as Los Vaqueros Reservoir), which can provide only limited flood control benefits outside their watersheds given the need for pumping, and projects to increase the capacity of existing reservoirs (which by their nature are only incremental).

Moreover, to serve as a substitute for floodway conveyance and storage, upstream reservoir capacity would have to be developed throughout the Central Valley watershed. The extreme weather events (i.e., atmospheric rivers) that create the greatest risk of a severe flood are often localized. Floodplain storage protects against floodwaters originating from all upstream areas, but by definition, upstream reservoirs can store only the floodwaters that originate from a particular area or tributary watershed. For example, an increase in the capacity of Shasta Lake would provide little or no benefit in the event of a major atmospheric rivers event focused on the central or southern Sierra Nevada. There is simply no reasonable scenario under which an array of new reservoir projects spread throughout the



Central Valley watershed would be feasible and could serve as an effective substitute for floodplain storage. Suitable and feasible remaining sites do not exist, the costs would likely be prohibitive and the opposition substantial, and environmental permits would be difficult if not impossible to obtain. It would be both speculative and imprudent for the CVFPP to rely on such an approach. None of the comments on the topic have addressed, much less rebutted, the substantial evidence that such an alternative could not feasibly meet the objectives of the CVFPP as directed by SB 5.

Failing to reserve adequate floodway conveyance and storage capacity now would leave future generations with limited options for addressing their flood protection needs. The current generation has benefited from the existing bypass system, and expanding that system would benefit both current and future residents.

It is recognized that in certain cases and to some degree, upstream floodway conveyance and storage could reduce the need for (or scale of) some types of downstream flood management actions associated with the SPFC. However, opportunities to reduce flood risks on lands protected by the SPFC by increasing floodway conveyance and storage are limited, and depend on a variety of factors:

- The location of a reservoir (or multiple reservoirs) with respect to the downstream actions or target area is important. Multipurpose reservoirs are present along many major tributaries to the Sacramento and San Joaquin rivers, but the hydrology (magnitude of rainfall and timing of peak flows from a watershed) and the operations of these reservoirs are very complex. Flood flows in downstream reaches of mainstem rivers are often influenced by the operation of multiple reservoirs, and peak flood stages may result from a combination of hydrologic events on different tributaries. Consequently, increasing flood storage in one reservoir may not reduce peak flood stage along a mainstem river reach because of the operations of other reservoirs, contributions from unregulated streams, or hydrology of the various tributary watersheds.
- The volume of floodway conveyance and storage that could be achieved is related to the size of the watershed and flood flows it generates, which can limit the effectiveness of expanding reservoirs or constructing new reservoirs. Expanding a reservoir is typically most effective when the existing reservoir has a small flood storage allocation compared with its tributary watershed. Similarly, it may not be effective to construct or expand a reservoir that controls a relatively small watershed.

- Opportunities to expand a reservoir are typically limited by the existing dam's location, size, and type of construction (concrete versus earthen, for example). A reservoir expansion sufficient to achieve the desired flood risk reduction benefits downstream may not be physically possible at all locations.
- The cost and potential impacts of enlarging a reservoir or constructing a new reservoir vary substantially from location to location. The CVFPP is a conceptual plan, and the PEIR is a program-level document; the site-specific analyses that would be needed to assess feasibility were not conducted as part of the CVFPP or PEIR, and will occur at the project level. See Master Response 24.
- Reservoir ownership varies, and studies of specific opportunities to expand reservoirs must be conducted in partnership with owners and operators.

The above factors indicate that a feasible and cost-effective surface-storage project could be developed only under specific circumstances, and that even if it is feasible, additional surface storage may not provide meaningful flood management benefits. These factors, combined with the conceptual systemwide focus of the 2012 CVFPP, precluded DWR from identifying specific reservoir storage elements to include in the SSIA at this time. These factors limited the ability to formulate an approach/alternative to include in the PEIR that focused primarily on increasing flood storage. Further, increasing storage alone would not achieve many of the CVFPP goals or fulfill legislative intent, such as improving ecosystem functions within the flood management system or achieving an urban level of flood protection for all urban areas.

Studies showed that combining bypass expansion, regional levee improvements, and coordinated operations in the SSIA did not result in systemwide hydraulic impacts that would be substantial enough to require including additional surface storage as a hydraulic mitigation measure. However, the plan does not preclude future consideration of new or additional flood storage by State, federal, or local agencies in the regional flood management planning or two basin feasibility studies, or as independent projects. (See Section 3.5.4 in Appendix A, "Central Valley Flood Protection Plan."). For additional details, see Master Response 10.

Master Response 7 addresses the issue of having a greater water supply focus in the CVFPP, which can also relate to whether a water supply focused alternative would be appropriate for the PEIR. As stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction for the CVFPP to "...include a description of both

structural and nonstructural means for improving the performance and elimination of deficiencies of levees, weirs, bypasses, and facilities, including facilities of the State Plan of Flood Control, and, wherever feasible, meet multiple objectives...” (CWC Section 9616(a)). The legislation further identifies 14 objectives, two of which address water supply and groundwater recharge (CWC Sections 9616(a)(3) and 9616(a)(14)).

The CVFPP includes a high-level discussion on integrating water supply benefits with flood management improvements. The SSIA elements focus on public safety and improvement of flood management, consistent with the legislative direction and CVFPP primary goal; however, implementing these elements could improve water management because expanding floodways and the bypass system could improve the flexibility of reservoir operations and increase in-channel groundwater recharge. The SSIA describes potential opportunities for integrating water supply benefits with proposed flood management actions, but it does not include specific project recommendations related to water supply because of the need for future site-specific proposals and analyses. During post-adoption activities (regional flood management planning and development of basin-wide feasibility studies), additional details will be developed, including specific water management features as part of multi-benefit projects, in collaboration with interested local and regional agencies and organizations.

In addition, the DPEIR evaluates the potential effects of the proposed program on water supply; for example, see Section 3.11, “Groundwater Resources,” and Section 3.13, “Hydrology.” The impetus for including both the Southern California and coastal CVP and State Water Project (SWP service areas within the PEIR (i.e., as the “SoCal/coastal CVP/SWP service areas”) was to ensure that potential effects of the program on water deliveries outside the Extended SPA and Sacramento and San Joaquin Valley watersheds were evaluated in the PEIR. The PEIR analysis did not find any significant adverse effects on water supply resulting from the proposed program.

DWR believes that the approach of focusing the CVFPP on flood management issues is consistent with the Legislature’s intent as expressed in the Central Valley Flood Protection Act of 2008, and that including elements that provide a greater focus on water supply is not necessary.

Capturing and using floodflows for groundwater recharge is a component of integrated flood and water management in the CVFPP. The State supports programs that use floodflows for groundwater recharge to improve water management throughout California. However, the State also recognizes the limitations of direct groundwater recharge in lowering flood

stage and reducing flood risks, especially in the Sacramento River Basin. Considering these limitations, the SSIA identifies opportunities for groundwater recharge within the flood management system (in-channel recharge and in expanded bypass areas). Although no specific recharge projects are recommended in the SSIA at this time, the State encourages further exploration of feasible recharge opportunities in the San Joaquin River Basin, in particular, to capture a portion of high flows from snowmelt.

DWR also recognizes that although expanding a floodway can assist in recharging groundwater by expanding the surface area of inundated ground during high-water events, a meaningful benefit cannot be assured. The inundated soils must be appropriate to allow groundwater infiltration. Depending on hydrologic conditions, an expanded floodway may be inundated only rarely, allowing only limited opportunities for increased groundwater infiltration. The local aquifer may be recharged from lands away from the river, with groundwater flowing toward and draining into the river. In this circumstance, increasing floodway inundation would have little benefit to local groundwater recharge. Therefore, potential groundwater recharge benefits from increasing floodplains, flood bypasses, and setback levees are very dependent on site-specific conditions. For additional details, see Master Response 7.

#### **G\_ACWA1-04**

Most of the topics referenced in this comment are addressed in response to comment G\_ACWA1-03 above. As discussed in the information from Master Response 10, the PEIR analysis did not find any significant adverse effects on water supply resulting from the proposed program. Therefore, an alternative with increased focus on water supply elements would not avoid or substantially lessen any of the significant effects of the project.

Master Response 17 addresses the issue of climate change and the CVFPP and PEIR. As stated in Master Response 17, the current science and best available information do not properly support a complete, quantitative analysis for climate change impacts on flood management. Climate change impacts and considerations have been incorporated into many recent and ongoing California resources planning studies, using varying analytical approaches. The CVFPP is the first major policy-level study with broad applications that addresses climate change for flood management in California. Typical analyses of climate change impacts—that is, assessments for long-term water supply needs—consider likely changes in average temperature and precipitation. However, climate change impacts on extreme events, such as floods, will not result from changes in averages, but from changes in local extremes.

To that end, DWR also has invested resources in developing a unique approach for assessing the impacts of climate change on Central Valley flood management. DWR has worked with leading experts and practitioners in the field to develop a new methodology based on the intensity of “atmospheric rivers,” which are fast-moving, concentrated streams of water vapor that can release heavy rains. The commonly known “Pineapple Express” is a form of atmospheric river.

However, insufficient data are available to be able to predict the magnitude or frequency of climate change impacts on extreme storm events, and climate projections from global climate models have difficulty representing regional- and local-scale precipitation patterns and processes that drive extreme events. DWR is working instead on the concept of prudent decision making that focuses on investments that could accommodate a broader range of climate change scenarios, rather than optimizing investments within a few selected extreme scenarios. DWR recently applied the resulting Threshold Analysis Approach to the Yuba-Feather system in a proof-of-concept pilot study. The results of the pilot study suggest that under F-CO, the Yuba River system is more vulnerable to changing climate conditions because of the limited regulating capacity (outlet release capacity) of New Bullards Bar Dam. This information provides guidance for the overall investment strategy for modifications such as enlarging outlets at New Bullards Bar Dam. DWR intends to fully develop the Threshold Analysis Approach for the 2017 CVFPP Update with new Central Valley hydrology and improved atmospheric river indices. This pilot study and the overview of potential climate change effects on the Central Valley flood management system are further detailed in Attachment 8K, “Climate Change Analysis,” in Appendix A, “Central Valley Flood Protection Plan.”

Although the 2012 CVFPP does not include a complete, quantitative analysis for climate change impacts on flood management, the CVFPP does include various system elements in its climate change adaptation strategy. The system elements provide additional benefits to the regional elements, and improve the overall function and performance of the SPFC in managing large floods. They also provide greater flexibility in accommodating future hydrologic changes, including climate change, and provide greater system resiliency in the face of changing downstream conditions. An evaluation of climate change in Section 6.6 of the DPEIR, titled “Effects of Global Climate Change on Program Facilities and Operations,” comes to similar conclusions.

The SSIA includes these system elements that provide flexibility to accommodate higher flows resulting from climate change:

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1. Wider bypasses to lower floodwater surface elevations would increase flow-carrying capacity and flexibility to deal with higher floodflows that may occur because of climate change.
2. Changes in reservoir operations from Forecast-Based Operations and F-CO can provide additional flexibility and adaptability to changes in extreme flood events.
3. The SSIA does not preclude State participation with others in reservoir expansion projects, and includes obtaining rights for floodplain transitory storage from willing landowners.

For additional details, see Master Response 17.



**G\_AR1**

William Edgar  
President  
Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento, CA 95821

April 20, 2012

Dear President Edgar:

G\_AR1-01 Thank you for the opportunity to comment on the Central Valley Flood Protection Plan. American Rivers' team of staff and consultants has extensively reviewed the plan and are pleased to present the attached comments.

Based on our review, we believe the Board should view the plan and underlying analysis, including the summary of costs and risk reduction benefits presented in chapters two and three, as preliminary. While the plan may be sufficient to serve as a framework for moving forward with more detailed planning, we believe that some key foundational steps, such as establishing specific objectives, will be necessary in the near future to focus future planning steps.

Due to the investment in the plan to date and the projected costs of implementation, we recommend that the Board commission an independent peer review of the plan to ensure that the plan is based on the best available science. The review should focus on how planning and analytical approaches can be refined to improve the quality of future analysis, so that any deficiencies in the planning approach are not carried into future planning phases.

We look forward to working with the Board, DWR staff, and other stakeholders in the weeks and months ahead to better understand the planning documents, learn from the underlying technical analysis, and improve the plan over time.

Sincerely,

A handwritten signature in blue ink that reads "John R. Cain".

John R. Cain  
Conservation Director

**American Rivers Comments on the Central Valley Flood Protection Plan**



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## 1. Vision Statement

A clear, compelling and concise vision statement is necessary to persuade voters and other decision makers to invest in Central Valley flood management. The vision should be firmly rooted in the following three guiding principles:

- Focus on flood risk management rather than flood control.
- Design for resiliency to expedite recovery after floods.
- Invest for sustainability to reduce long-term economic and environmental costs.

The vision statement should contain five parts: (1) a description of the problem, (2) guiding principles, (3) goals, (4) a strategy for achieving the goals, and (5) a description of the benefits that will accrue from successfully implementing the strategy.

- *Problem statement:* Stakeholders from the five regional planning areas developed an excellent description of the problem, which is included in the regional conditions report. Although the description of the problem in the vision statement should be more concise, the board should refer back to this stakeholder-developed problem statement when it drafts its vision statement for the plan.
- *Guiding Principles:*
  - Focus on flood risk management rather than flood control.
  - Resilience: Design the system for resiliency to allow the system to recover from large floods with less impact to local communities and the state economy. Unfortunately, the plan does not focus much attention on designing for resiliency and recovery (see section 18.4 below).
  - Sustainability: Invest today to reduce long-term economic and environmental costs.
- *Goals:* The plan and vision statement must succinctly describe clear goals and a commitment to measure progress toward those goals. In the comments below we offer suggestions for revising the plan goals including a new primary goal, recommendations on how to clarify the relationship between primary and supporting goals, and suggestions for developing measurable objectives.
- *Strategy:* The strategy should describe the general physical and institutional changes or approaches necessary to address the problem and achieve the goals, consistent with the guiding principles.
- *Benefits:* A description of the benefits expected to accrue from achieving the goals is essential for persuading decision makers and the public to support the plan.

G\_AR1-02

## 2. Goals and Objectives

### 2.1. Clarify the Relationship Between Primary and Supporting Goals

The board should clarify that the CVFPP supporting goals are not second tier and are essential to success in reducing flood risk and damages. The CVFPP currently identifies flood protection as the primary goal, and it appears to subordinate ecosystem restoration and multi-benefit projects, including water supply, to supporting roles. We understand why the flood plan should focus on flood protection to protect human life, but we do not believe that it is necessary or justifiable to relegate water supply and ecosystem restoration to second tier status, as some stakeholders have suggested. Instead, a successful and legally permissible plan must achieve flood protection while also ensuring concurrent progress toward the supporting goals. A flood plan that does not advance the co-equal goals in the Delta may be incompatible with the Delta Plan and the state's larger interest in the Delta.

Further, focusing exclusively on flood risk management without designing improvements which also advance the supporting objective of ecosystem restoration will require costly mitigation and time-consuming permitting. State law now requires that management of the Delta should be guided by the co-equal goals of improving water supply reliability and ecological conditions in the Delta. Federal law requires that water resource management throughout the Central Valley comply with the Clean Water Act, the Endangered Species Act, and other applicable laws. To the extent that the CVFPP will change the hydrologic or ecological conditions of the Delta or its watershed, the Central Valley Flood Protection Board *must ensure* that the plan and its implementation are consistent with these statutory and regulatory requirements while simultaneously advancing the co-equal goals for the Delta.

#### *Recommendations:*

- To avoid any ambiguity about the relative importance of supporting goals versus the primary goal, we recommend that the board adopt the following additional primary goal statement:  
  
“Provide a vision for an integrated and sustainable approach to flood risk management.”
- The board should also include specific language in section 1.6.2 that indicates how the Conservation Framework and associated conservation goals and objectives are integral to that vision.
- The board should clarify that the plan and all future projects funded under the plan should advance the supporting goals, together with the primary goals, wherever possible.

G\_AR1-03

### 2.2. Suggested Revision to the “Improve Flood Risk Management” Goal

The primary goal, “improve flood risk management,” is overly and perhaps purposely vague. We see no reason why the goal should not be to “reduce flood risk.” From previous discussions on the subject with

DWR staff and consultants, we understand that they specifically did not choose this wording because they believe *it will not be possible to reduce flood risk* due to projected growth and development of floodplains combined with climate change. If DWR or the flood board actually believes this is true and acceptable, they should clarify *why they don't believe it is possible* to reduce flood risk over time and should instead adopt the goal to *"minimize growth of flood risk"* over time.

*Recommendation:*

- The Board should change the primary goal from "improve flood risk management" to "reduce flood risk."

G\_AR1-04

### **2.3. Role of SMART Objectives**

Specific and measurable objectives should be developed to better define what the plan intends to accomplish. Measurable objectives are essential to guide planning efforts and to measure whether implementation is actually succeeding. During the public planning process, DWR staff and consultants emphasized the importance of "SMART" objectives – specific, measurable, achievable, relevant to the goal, and time-bound objectives. Unfortunately, the actual development of the SMART objectives stopped when DWR staff dispensed with the second half of the public planning process.

The board must now act to develop SMART objectives to guide the plan. Although goals and objectives are essential to a technically sound document, their development is not a technical exercise, but rather a statement of values and intent. As the appointed representatives of the people of California, it is appropriate for the board to oversee the development of SMART objectives to guide the plan. We recommend that the board establish a standing committee(s) of stakeholders, led by one or more board members, to develop SMART objectives for the primary and supporting goals over the next six months in order to guide the regional planning process.

G\_AR1-05

#### **2.3.1. Flood Risk Reduction Objectives**

The plan claims to focus on flood *risk* management rather than simply *flood* management, but the lack of specific, measurable objectives or criteria to focus risk reduction measures appears to have resulted in a plan that relies heavily on structural flood control measures such as levees. The plan references flood risk management multiple times and includes a very clear description of flood risk management on page 1-14. The text describing the primary flood risk management goal, "improve flood risk management," acknowledges the importance of also reducing damages when flooding occurs, but then offers an unacceptably vague description of how the plan will actually manage risk. Consequently, the plan focuses mostly on providing a specific level of protection (the probability side of risk), such as 100 or 200 year protection, to various regions, but offers little to reduce the consequences of eventual flooding for those regions.

As discussed in the flood risk management section below, we believe the plan must first *identify a tolerable level of risk* and then must *utilize the full suite of risk management tools*, including land use regulation, flood insurance, levees, bypasses, building codes, etc. to reduce risk to tolerable levels. This tolerable level of risk approach has been employed in other industries and countries and we see no reason why it should not be employed in California to guide investments of billions of dollars. Once the plan has identified a tolerable level of risk, we recommend more specific objectives, such as those listed below *in order of priority*, to guide flood system investments.

- Minimize the risk of loss of life to tolerable levels by 2025.
- Minimize the risk to property of statewide economic importance by 2030.
- Minimize the risk to property of regional economic importance by 2035.
- Minimize the risk to property of local economic importance by 2040.

G\_AR1-06

### 2.3.2. Conservation Objectives: Promote Ecosystem Function

SMART conservation objectives are essential, not only for advancing the conservation goals of the plan legally required by law, but also for expediting permitting and implementation. The following text from the Federal Register further supports this effort.

*“(a) Identify and provide detail about the wildlife and water quality concerns to be addressed and how the proposal's objectives will address those concerns. Objectives should be **specific, measurable, achievable, results-oriented**, and include **a timeline** for completion.”*

*U.S. Dept of Agriculture: Cooperative Conservation Partnership Initiative and Wetlands Reserve Enhancement Program. Federal Register: Volume 77, (1):73-79, January 3, 2012. Accessible: <http://www.gpo.gov/fdsys/pkg/FR-2012-01-03/html/2011-33692.htm>*

Planning and design in the absence of conservation objectives will not obviate the need for eventually developing them as part of a mitigation strategy. Establishing objectives in the near future *before* planning proceeds further will expedite permitting and substantially reduce mitigation costs.

Rather than develop entirely new conservation objectives, we recommend that the board include the CVPIA doubling plan for native anadromous fishes and the CVJV plan for wetland, birds, and terrestrial species as the overarching objectives for the CVFPP when the board approves the plan in June. Additionally, we recommend that the board establish a committee of stakeholders and scientists to develop more specific outcome and action-based objectives. These objectives shall describe more precisely the extent to which the CVFPP will make changes to the flood system that will significantly contribute to the overarching objectives for fish, birds, and wetland habitat.

Below we provide some examples of SMART objectives that could be quickly developed or adopted from other programs to guide the flood plan:

- Reduce the area of non-native vegetation in the floodway by 25% by 2020.
- Create 10,000 – 17,000 acres of floodplain rearing habitat in the Yolo Bypass that is: 1) accessible to juvenile salmonids, and 2) inundated at a two-year recurrence interval for a minimum of 30 days between November 15 and April 15 to benefit winter-run and spring-run salmon by 2020.
- Eliminate fish passage barriers in the bypass that trap or impede the migration of adult migratory fish including sturgeon, salmon and steelhead by 2020.
- Use the Central Valley Joint Venture (CVJV) objectives for wetland bird habitat, riparian bird habitat, and post-harvest flooded rice and other wildlife compatible agriculture to provide quantitative metrics of the effects of flood projects on avian conservation efforts.
- The plan should use the Central Valley Project Improvement Act (CVPIA) doubling goal for native anadromous fishes as a goal of the Conservation Framework and Strategy.

DWR is arguably already required to achieve the second two objectives under the biological opinion for the State Water Project. As discussed in the multiple benefits project section below, these improvements would not necessarily be funded with flood bond money. However, it will benefit DWR and the state if the flood plan accommodates or advances these objectives through project selection or design. Arguably, however, DWR is legally required by the fish and game code to remedy any fish passage barriers created by flood project facilities.

G\_AR1-07

### **2.3.3. Improve Operations and Maintenance**

The title of this supporting goal is quite vague. What does it mean to “improve operations and maintenance?” If the goal is to reduce operations and maintenance costs as implied by the descriptive text, the board should simply rename this objective “reduce operations and maintenance costs.” Or perhaps the goal is to reduce *state* operations and maintenance costs. After review of the plan, it is unclear to us whether any of the approaches, including the SSIA, will actually reduce operations and maintenance costs, or whether any of them were actually designed to reduce long-term O&M.

Operations and maintenance costs need to be addressed first from the system design perspective. Project features that require regular costly maintenance such as levees or expensive operation procedures such as gates should be avoided where possible. But new and repaired levees along with gates on weirs comprise a significant portion of the SSIA budget. To reduce O&M costs, parts of the system could be redesigned or managed in a different way. For example, channel widening may lead to lower erosion pressures and thereby reduce annual costs for bank stabilization and levee repairs. Vegetation properly placed can reduce scour forces and preserve levee integrity. Matching flow dynamics to the transport of sediment can alleviate the deposition of sediments in critical locations. While the SSIA is structured at a scale that precludes identifying specific locations where these O&M

can be addressed, the CVFPP should nevertheless state the board's intent to evaluate ongoing O&M needs with an eye toward alleviating unnecessary costs. This can only practicably be done if the plan first identifies SMART objectives for O&M.

*Recommendation:* The board should designate a standing committee of stakeholders and experts to develop SMART objectives for each of the plans' primary and supporting goals.

G\_AR1-08

### **3. Beyond mitigation - Integrated Regional Water Management Planning and Multiple Benefit Projects**

Integrated water resource management planning is the official policy of the state of California. The era of single purpose projects that require "mitigation" because they cause harm to the environment is inconsistent with integrated water management. Projects in the plan should therefore be designed to advance multiple objectives, including ecosystem restoration. Often times, this requires conceptualizing larger projects that integrate multiple needs across a region that transcends one jurisdiction or one implementing agency. Mitigation may occasionally be necessary for particularly constrained projects, but it should be the *exception* rather than the norm.

G\_AR1-09

#### **3.1. Multiple Benefit Projects Not Adequately Integrated into the Plan**

The plan appropriately discusses integrated regional water management planning, but it is not clear that integration is a genuine element of the plan. Our analysis of the cost estimates and SSIA indicate that the plan was developed solely to advance flood management with no clear efforts to advance or leverage other programs to advance ecosystem restoration.<sup>1</sup> For example, mitigation along with design and engineering is budgeted as a percentage of the cost for nearly all system improvements. If improvements or the plan were genuinely designed to advance conservation goals or integrated into larger regional efforts that advance conservation objectives, little to no mitigation expenditures would be necessary. Most importantly, there are no measurable objectives for conservation or other supporting goals. Without measureable objectives, it is difficult to judge whether the plan will actually achieve multiple benefits.

Page 3-41 reports that ecosystem restoration is fully integrated into the plan as we believe it should be, but we don't believe that it actually is, or that such integration will actually occur in the implementation. Most of the money appears to be directed toward fund levee improvement projects for urban areas,

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<sup>1</sup> Participation of DWR staff from the Division of Flood Management and the Flood Safe and Environmental Stewardship program in the BDCP South Delta Habitat Working Group analysis of opportunities to integrate habitat restoration for BDCP together with flood risk reduction is one commendable exception and should be promoted as a model for integration across divisions and programs at DWR.



and the ULDC doesn't require vegetation on the levee. To the contrary, the vegetation policy in the plan and of the USACE will gradually reduce vegetation along the rivers. Because most of the money is spent on urban levees without vegetation, the "ecosystem" part of the plan is likely to be mostly mitigation. As stated elsewhere, we believe that greater investment for levee setbacks and expanded bypasses is a better way to reduce flood risk while also achieving other benefits.

Section 3.7 calls for integrating environmental stewardship early into policy and planning, which would be beneficial, but there is very little detail and nothing budgeted to make this happen. The Conservation Framework and conservation elements of the plan are a great step forward, yet the plan still suffers from the view that conservation elements should be viewed as mitigation for impacts instead of fully integrated elements of most flood management improvements. The Corridor Management Strategy described on page 4-8 is one particular program with great potential to advance multiple objectives and should be better developed. We provide additional input on corridor management in sections 14 and 15 of these comments.

G\_AR1-10 The plan barely mentions linkages to water supply, and fails to provide any analysis regarding how expanded floodways and floodplain restoration could improve water supply reliability or how groundwater banking and conjunctive use could improve flood management. The plan does not address how flood management will be impacted by water supply plans such as the 5 new intakes of a Peripheral Canal.

G\_AR1-11 Furthermore, neither the plan nor the SSIA advance flood risk management strategies and tools that are outside the traditional jurisdiction of the division of flood management and would require collaboration with other agencies or levels of government. Tools like conjunctive management of surface and groundwater, land use regulations, flood insurance, etc. are not adequately promoted. We fully appreciate that this type of integration is difficult and that DWR staff may not be empowered to advance the type of collaboration necessary to realize the flood risk reduction benefits of integration across jurisdictions. Nevertheless, integrated regional water management planning is the official policy of the state of California and, if fully embraced by the flood plan, could save billions of dollars.

True integration to advance multiple benefit projects will require DWR and CVFPB to change the way that they conceptualize, plan, design, partner, implement, and fund projects. Failure to make these changes will make it virtually impossible to advance multiple benefit projects or the conservation objectives required by SB 5. The plan and board should explicitly acknowledge these challenges and identify the procedural changes necessary to facilitate multiple benefit projects. For example, the plan says nothing about Title 23 regulations, but the draft Title 23 regulations could prevent any vegetation from being planted in the expanded bypasses and, read literally, could prevent any trees from being added in designated floodways, which in many cases are natural waterways. Similarly, traditional funding mechanisms and cost sharing guidelines do not pay or account for any vegetation or habitat creation beyond what is legally required for mitigation of habitat destruction. While the new plan discusses the need for integration in multiple places, it does not provide any proposal to change Title 23 or cost sharing provisions to make real integration possible.

G\_AR1-12

### 3.2. Demonstration Projects to Facilitate a New Era of Multiple Benefit Projects

In the history of DWR flood management projects, integrated planning and multiple benefit projects are relatively new ideas. Although IRWMP is the official policy, the actual practice is not sufficiently developed to fully comply with policy. DWR and the board should expedite model projects designed to align practice with policy. The plan should designate funding for model projects—ideally shovel ready—in each region to demonstrate the potential promise of multiple benefit projects to local stakeholders, and to provide DWR staff with a concrete opportunity to develop a new model for how to collaborate, plan, design, finance, and implement such projects. Model projects should be selected to achieve a variety of criteria that characterize successful and integrated projects including:

- Projects intentionally designed to significantly advance three or more goals combined with a monitoring program to monitor success based on each goal
- Collaboration by three or more partners including a conservation organization or fish and wildlife agency
- Multiple funding sources

Specific examples of the types of model projects that DWR and the Board should advance are listed in Attachment 1.

#### *Recommendations:*

- Make a finding that all cost sharing provisions, Title 23, grant program guidelines, and all other programs that determine eligibility or funding shall be consistent with the plan and designed to advance the goals and objectives of the plan.
- The board should include a new section in the plan describing a program, including project selection criteria, to expedite demonstration projects in the next five years in each of the nine planning regions.

G\_AR1-13

## 4. Urban/Urbanizing Area Compliance with Senate Bill 5 Planning Requirements

The plan and supporting documents and tools appear to provide enough information for local agencies to develop maps of areas protected from the 200-year flood. The plan provides the 100 and 200 year water surface elevation for various reaches as well as levee conditions for various points of the system. With this information, local jurisdictions have the information necessary to make local maps required to comply with provisions of SB 5.

It is our understanding that DWR has the information necessary to develop the 200-year maps in ALL areas served by the State Plan of Flood Control. DWR is planning to release those maps within a year (by March 2013). According to our reading of the law, DWR is not obligated to develop the maps. The locals could and should do it before permitting new development.

Changing the compliance date for updating local general plans under SB 5 or otherwise relaxing restrictions on development in deep flood plains is unacceptable to American Rivers. We do, however, believe that it may make sense to narrow and limit the geographic scope of areas required to comply with the land use provisions of SB 5. For example, the land use provisions of SB 5 should not necessarily apply to areas outside of the Central Valley floodplains such as the Sierra Nevada, since SB 5 was drafted to address the high risk of flooding in the deep floodplains of the Central Valley.

*Recommendations:*

- The board should not recommend any actions that would delay compliance with the land use provisions of SB 5.
- The board should make a finding that the intent of the land use provisions of SB 5 was to prevent urbanization of low-lying floodplains in the Central Valley and therefore should not apply to areas outside of the Central Valley.

G\_AR1-14 **5. Rural Versus Urban Flood Protection**

The SSIA correctly prioritizes urban areas for increased flood protection because deep urban floodplains are where the greatest numbers of lives are at risk and where the greatest property damage would occur. The voters passed proposition 1E to prevent the deep, urban flooding that occurred in New Orleans from occurring in the Central Valley, and it is therefore reasonable to focus flood protection improvements on areas already developed rather than on rural areas.

The urban areas will also benefit from the lower level of flood protection in the upstream rural areas, and should therefore provide financial assistance to help rural areas shoulder the burden of lower flood protection, since flooding of rural basins is a de facto element of the plan. Although “transitory storage” or planned flooding of designated basins is not actually included in the SSIA, unplanned flooding in rural areas is assumed in the SSIA and rural landowners are not compensated for this transitory storage under the SSIA. In contrast, the ESFC approach includes designated transitory storage zones and compensation to rural areas for the right to inundate those zones in the biggest floods. Landowners should not be compensated for living in a floodplain, but beneficiaries in urban areas should be able to pay for the flood attenuation benefits that “planned” or “unplanned” transitory storage provides.

G\_AR1-15

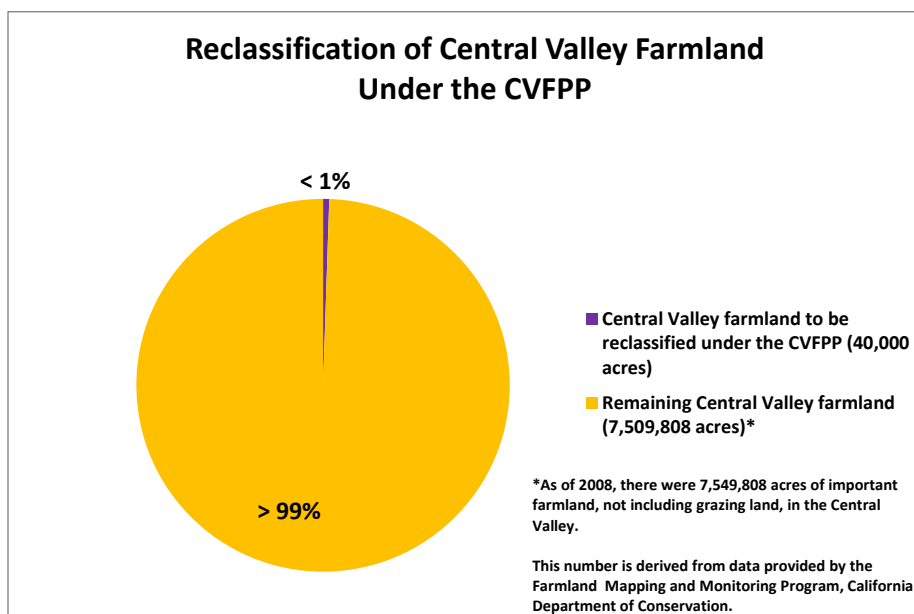
## 6. Agricultural Land Conversion

Agriculture provides important benefits for society, including wildlife habitat in the Central Valley. American Rivers supports efforts to maintain land in agricultural production and believes that systemwide improvements in the flood plan will benefit agriculture.

Bypasses in the Central Valley greatly reduced the probability of uncontrolled flooding of agricultural lands in the early twentieth century. By expanding bypasses and setting back levees, the plan will provide better flood protection in the future. Expanding the capacity of the floodway will increase management flexibility of upstream reservoirs. We understand that this increased protection may remove some land from production, and believe these impacts should be mitigated with fair compensation.

The board should realize that the plan also includes provisions to acquire up to 115,000 acres of agricultural conservation easements to protect agricultural land.

Although the plan calls for transferring 35-40 thousand acres of farmland into expanded flood bypasses over the course of the next 2-3 decades, most of this land could still remain in agriculture, albeit a economically less productive type of agriculture. Although large, 40,000 acres is a very small fraction of the total farmland in the Central Valley, and is a small fraction of the amount of land converted for urbanization.



Data Source: Farmland Mapping and Monitoring Program, California Department of Conservation; Central Valley Flood Protection Plan, 2012 Draft

G\_AR1-16 **7. Bypass Proposals, Levee Setbacks, and Other Regional Issues**

The board's role is to ensure that the flood management system is managed to protect and advance the state's role in flood and river management]. Changes in the configuration of the flood system, particularly when it affects private property, will be controversial. The board should not dismiss proposed changes to the flood system simply because they are unpopular in a particular region. Instead, the board should direct DWR to objectively analyze the costs and benefits of various proposals, and then work with DWR to advance the improvements that most cost effectively advance the flood plan objectives.

G\_AR1-17 **7.1. Levee Setbacks Not Properly Evaluated**

We do not believe that DWR has objectively or adequately analyzed the benefits of levee setbacks. As discussed further in our review of the technical analysis, DWR did not evaluate the potential of setbacks in combination with other measures to advance the overall goals of the plan. We urge the board to direct DWR to consider levee setbacks in the next series analyses and in systemwide planning designed to optimize the SSIA.

G\_AR1-18 **7.2. Flood Bypass Expansion Justified**

Flood bypasses reduce risk by both reducing the probability of unplanned flooding and the consequences. See Attachment 3 for a more detailed explanation of how bypasses are a more comprehensive risk management strategy.

In addition to the analysis conducted for the plan, there is a very large body of information indicating that expanding the Yolo Bypass or creating a new bypass on the Lower San Joaquin River would substantially reduce flood stage and risk for both urban and rural areas. A 2003 study by SAFCA and many reputable consultants concluded that expanding the Yolo Bypass capacity by ten percent in combination with the real time operations at Folsom would reduce flood stage at I Street Bridge by four feet. It would lower the 200-year flood stage to less than the baseline 100-year flood stage.

In support of the SB 5 and Water Code 9613 mandate to investigate the feasibility of a bypass on the Lower San Joaquin, the 2012 Central Valley Flood Protection Plan states that "in the lower portion of the San Joaquin River Basin, [the State Systemwide Investment Approach] includes a new bypass to divert flows from the San Joaquin River into the south Delta as initiate."

Preliminary analyses indicate that a new bypass at Paradise Cut, or in its vicinity, with a capacity of about 4,000 cubic feet per second could effectively reduce peak flood stage along the San Joaquin River in the Stockton metropolitan area." While we are encouraged by and supportive of the inclusion of an

expansion of the flood management system in the vicinity of Paradise Cut, the limited documentation of this approach and supporting modeling and analysis in the plan and its attachments causes us to question whether or not the full potential of this approach has been considered.

American Rivers has conducted detailed modeling analyses of a very similar approach and demonstrated that an expanded Paradise Cut combined with other improvements in the lower San Joaquin area could increase the capacity of Paradise Cut from approximately 12,000 cubic feet per second to approximately 20,000 cubic feet per second during a 50 year peak flow, lowering flood stage by 1.5-2 feet. We are concerned that the limited modeling conducted to evaluate the approaches in the plan has underestimated the potential benefit of a Paradise Cut improvement and, perhaps more significantly, has eliminated other potentially beneficial approaches from being advanced to the State Systemwide Investment Approach.

The board should make the following findings regarding flood bypasses (See Attachment 3 for more details):

- Flood bypasses can reduce risk for urban areas by routing water away from constrained, urban reaches and toward less developed flood basins.
- Expanding the capacity of the lower end of the flood system through the creation or expansion of flood bypasses is a key element of the flood plan and is essential for reducing flood risk for urban areas, increasing system resiliency, and investing in sustainability.
- Expanding capacity in the lower end of the system is a prerequisite for future upstream levee improvements or setbacks without transferring impacts downstream. Improving upstream levees without first expanding downstream capacity could increase flood peaks and flood risk for downstream communities.
- Properly designed and operated flood bypasses can provide important ecological benefits for fish and wildlife.
- Flood bypasses are a resilient strategy for both managing floods and reducing risk:
  - Lower flood stage, resulting in lower flood depth.
  - Less wear and tear on levees from high flood stage or high velocities
  - Provide text on the ecological benefits of flood bypasses in the Conservation Framework.
- DWR should prioritize planning and permitting necessary to expand the Yolo and South Delta bypasses.

G\_AR1-19

### **7.3. Feather River Bypass**

On page 3-14 and 3-15, the draft discusses evaluating the feasibility of constructing a new bypass from the Feather River into the Butte Basin to divert floodwaters out of the Feather River for the purposes of increasing flood protection for Yuba City and Marysville during large flood events. The plan does not provide enough detail regarding how and when this bypass would be operated. The board should direct

DWR to provide more specifics on how the bypass would be operated, and how operations would affect agriculture, land management in the Butte Basin, and flood conveyance in the Sutter Bypass and Sacramento River. As far as we are aware, no benefits for fish and wildlife are associated with the proposed Feather River Bypass because it would only be operated during the largest flood events.

Potential adverse impacts to migratory waterfowl habitat, management activities, and associated infrastructure in the Butte Sink and Sutter Bypass should be considered due to expected higher flood flows for longer durations. The affected areas not only include the Butte Sink and Sutter National Wildlife Refuges, but also many private lands under state or federal conservation easements or agricultural lands (e.g. rice) that benefit waterfowl and other wildlife. The construction of 16 miles of new levee adjacent to the Cherokee Canal could also affect waterfowl habitat management activities on Little Dry Creek State Wildlife Area, portions of which lie directly adjacent to the Canal, while causing short-term disturbance to waterfowl and other ground-nesting birds.

As a possible alternative to protecting public safety during large flood events, the plan should call for the evaluation of additional setback levees along the Feather River to increase its flood capacity. As mitigation for waterfowl impacts, the plan should also consider funding for waterfowl habitat infrastructure improvements or management activities on affected public and private wetlands.

## G\_AR1-20 **8. Funding and Finance Plan**

A financing plan is required by the legislation, but not included in the plan. Integrating a financing strategy into the plan from the beginning may have significantly changed the outcome of the SSIA. The SSIA is not an investment approach as the name implies. Rather, it is simply a collection of projects and programs that DWR staff has prioritized for funding with state flood bond funds. DWR staff did not consider how flood bond funds could be leveraged or combined with other funds to maximize investment in flood system improvements. Had they considered such a strategy, they may have developed a very different plan – a far more integrated plan with more multiple-objective elements.

The prospects for additional funds from the US Army Corps of Engineers have been overstated in the plan, meanwhile partnership opportunities with other state initiatives such as BDCP and the San Joaquin River Restoration are not adequately considered. Funds will either have to come from local government or additional bonds. A multiple objective strategy including habitat restoration, water supply benefits, parks, and recreation is much more likely to garner the public support necessary to pass additional bonds. As currently drafted and budgeted, the investment approach is a completely stand-alone program which assumes that the flood management improvements contemplated by the CVFPP are the only state or federal investment in the Central Valley planning area. Although there is discussion in Chapter 4 about integration with other programs such as the BDCP, it is clear that the investment approach and budget were developed with very little consideration of how these other programs could be leveraged to advance the objectives of the flood plan. Similarly, DWR has not considered how improvements of the flood plan could be adjusted to benefit other state and local programs and thus qualify for cross program cost-sharing.

Advancing the goals of other critical programs, such as endangered species conservation, recreation agricultural preservation while developing a flood risk reduction plan would have created opportunities for the costs of flood management improvements to be broadly distributed across other programs and to respond to needs beyond strictly flood control issues. Attempting to integrate other state programs and objectives would have allowed other programs to align *their* needs with flood management. Funding for projects addressing water supply, water quality, habitat and species management, recreation, transportation and other infrastructure needs will continue to be expended in the Central Valley. Both the project footprints and the mitigation needs for these other projects offer opportunities for partnerships that could distribute costs across broader societal needs. Rather than the board assuming full responsibility for all costs, integrated projects allow for the flood management costs to be shared across other programs.

In addition, nongovernmental organizations are engaged in a broad array of conservation, restoration, and scientific efforts pertinent to flood management. DWR has not effectively partnered with these organizations and has not been able to take advantage of their specialized capabilities and expert staff. Engaging with the NGO community can provide DWR with important expertise to help move to a greater level of integration. DWR's relationships with the NGO community have largely been as a grantor providing funds for on-the-ground projects. Bringing the NGO community into the planning and design phases of DWR work could offer considerable advantages in dealing with multi-benefit projects.

## G\_AR1-21 **9. Technical Analysis of Preliminary Approaches and Alternative Analysis**

The analysis of preliminary approaches in Chapter 2 is useful for narrowing the range of viable options. It correctly concludes that simply "fixing" the existing levee system in place, and achieving the state plan of flood control design, will not meet the objectives of the legislation (table 2-5), and in fact would increase flood stage and risk for urban areas. Fixing the levees in place would only funnel higher flood flows downstream toward Sacramento and Stockton, thereby increasing flood risk.

G\_AR1-22 The plan does not, however, analyze how climate change would affect the efficacy of this approach, but it seems likely that increased discharges from climate change, particularly in the San Joaquin basin, would make this approach even less viable. The assessment of preliminary approaches in table 2.5 correctly concludes that the enhanced system capacity alternative is the only alternative that most meets the objective enumerated in SB 5.

G\_AR1-23 As discussed below, however, the cost and benefit (risk reduction) analysis presented in Chapter 2 and supported by the Technical Appendices is distorted by the fact that objectives and criteria for measuring the efficacy of the various approaches are not adequately defined, costs are not consistently calculated, alternatives are not properly formulated or optimized to achieve the project goals, and promising measures such as levee set-backs or transitory storage were rejected out-of-hand for political expediency.



G\_AR1-24 The board should make the following findings with respect to the alternatives analysis conducted to inform the plan:

- Upgrading the existing system to achieve state plan of flood control design capacity will not meet the objectives of the legislation (table 2-5), and in fact would increase flood stage and risk for the Delta and downstream urban settlements.
- The “Protect High Risk Communities” approach alternative failed to include floodway and bypass expansion as a strategy to reduce risk for urban communities.
- Without clear measurable objectives, the alternatives analysis lacks explicit criteria to guide the development of alternatives or measure the predicted effectiveness of the various alternatives.
- The “enhanced system capacity” approach was the most complex to design and analyze, and as a result, was never optimized for cost or benefits. This is a critical oversight and should be remedied as this approach, or specific elements of it, may offer the greatest long-term cost savings.
- The alternatives analysis did not adequately evaluate levee setbacks.
- The cost-benefit analysis is very preliminary and maybe flawed due to the manner in which the approaches were constructed, the failure to adequately account for many risk factors and benefits, and inconsistencies in cost estimates across alternatives.
- DWR may have improperly and unfairly evaluated alternatives because they did not use a consistent set of metrics/hydrology/assumptions across each alternative.

G\_AR1-25

### **9.1. Lack of SMART Objectives is a Major Flaw**

The lack of clear, measurable objectives is the biggest flaw of the alternatives analysis. Without these objectives, there are no explicit criteria to guide the development of alternatives or measure the predicted effectiveness of the various alternatives. While the plan does measure important attributes of each alternative, such as flood stage in various reaches or reduced risk, because it is not guided by an explicit set of objectives, and instead is driven by unstated objectives such as to build and strengthen levees, the plan (SSIA) was not actually developed to reduce risk more broadly or to advance supporting goals such as ecosystem restoration. Our review of the underlying documents, particularly the cost estimates, indicates that the majority of the analysis and proposed improvements are focused on strengthening and hardening levees. Ecosystem restoration elements are either treated as mitigation or layered on top, instead of being integrated into the plan.

G\_AR1-26

### **9.2. The Enhanced Flood System Capacity (EFSC) was Not Sufficiently Analyzed or Optimized.**

The EFSC is not a stand-alone approach, but a combination of the two other levee improvement approaches plus a number of other actions; the efficacy of the other actions, or combinations of other actions, was never tested or optimized. The reason the EFSC is so expensive (\$32-\$41 billion) is that it

consists of the “achieve SPFC design capacity” approach (\$19-23 billion), plus the “protect high risk communities” approach (\$9-11 billion), plus a number of other measures including levee setbacks, conservation easements, expanded bypasses, transitory floodplain storage, and expensive new surface storage.

As far as we can determine, DWR never evaluated an approach consisting only of the following elements: expanded flood bypasses combined with levee setbacks, transitory floodplain storage, conservation easements, and reservoir reoperation. Such an approach, combined with improving urban levees for Sacramento and Stockton is precisely the approach that several conservation organizations advocated for during the public planning process. See attachment 2 for American Rivers’ one page flood plan comprised of these elements.

Due to the inclusion of the rural and urban levee improvements and their associated costs in this analysis, we believe the projects and components that meet the intent of the Enhance System Capacity alternative were prematurely discarded. The incorporation of urban and rural levee improvements into the Enhance System Capacity alternative greatly distorts the bottom line costs and the benefits of new flood bypasses and floodway expansions. The most significant costs in this alternative, comprising between a third and a quarter of the total expense, are rural levee improvements listed at \$11 billion. Urban improvements included in this alternative are estimated between \$4.2 and \$5.0 billion. Neither of these features, despite their overwhelming price tags, enhances the capacity of the Central Valley flood system.

New flood bypasses, measures that do enhance the capacity of the flood system, are estimated to cost between \$4.0 and \$4.4 billion for 36,800 acres of floodway expansion. In addition, nine levee setbacks that expand the floodway by 26,000 acres were also included in this approach and the total cost for these nine projects is estimated to be between \$3.0 to \$4.2 billion. In general, per acre of expanded floodway capacity, bypasses and floodplain reconnection have very similar costs and have been shown in previous studies to provide substantial flood benefits on both local and regional scales.

Unfortunately, hydraulic effects cannot necessarily be added linearly, like costs. Given that this EFSC approach is further complicated by the addition of (1) several reservoir upgrades, (2) new storage components, and (3) inconsistent assumptions about upstream levee failures, it is impossible to properly evaluate what proportion of the flood benefits were the result of flood bypasses and levee setbacks and which benefits were the result of other components.

It is disappointing, but not surprising, that DWR did not evaluate more variations of the Enhanced System Capacity approach. This approach is by far the most difficult to plan and analyze because it entails developing and modeling completely new configurations of the system. In contrast, strengthening levees and enlarging reservoirs are relatively easy to configure, model, and evaluate. Reconfiguring the system is also politically complex, but that is not a sufficient reason for DWR staff or their consultants to have discarded the idea. It would be a disservice to California taxpayers if DWR and

the board were to move forward in implementing the SSIA before first evaluating whether an alternate formulation of the EFSC approach would more cost effectively achieve the state's flood plan goals.

G\_AR1-27

### 9.3. Levee Setback Alternative Not Fairly Analyzed

It is evident from our review that strategy of employing levee setbacks, also referred to as flood corridor expansion, were not fairly analyzed. We are encouraged that the CVFPP acknowledges and promotes expanded and new flood bypasses as a way to achieve the multiple benefits in the Central Valley flood system. However, we are disappointed that the plan so hastily eliminates the benefits of levee setbacks.

Based on the details provided in Attachment 8J, Appendix E, locations for levee setbacks were primarily chosen based on the results of Floodplain Restoration Opportunities Analysis (FROA). While we applaud the recognition of environmental benefits that floodway expansion can provide and the foresight to choose riparian enhancement sites that would be subject to frequent and long inundations, this analysis shows the flood benefits of setbacks in these locations may be limited. The universal conclusion regarding the inefficiency of levee setbacks in the CVFPP is more reflective of the *method* used to choose sample projects rather than the *efficacy* of the possible suite of projects throughout the Central Valley.

Furthermore, we have several questions regarding the methods used in the FROA analysis and therefore question whether it was appropriate to use this analysis to site levee setback options. See comments on Attachment 9F.

Moving forward, we believe that floodway expansions should be reintegrated into the SSIA—along with the new bypasses and bypass expansions—by using the following guidance for setback levee site selection.

To achieve the multiple benefit objective of the CVFPP, the location for levee setbacks should meet two of the following three criteria:

- 1) The setback should expand system capacity by eliminating a bottleneck in the conveyance system.
- 2) The setback should significantly reduce levee maintenance and/or the potential for levee failure by targeting locations that have existing erosion or stability problems and/or are subject to high flood velocities.
- 3) The setback should provide substantial ecosystem benefits.

G\_AR1-28

#### 9.4. Cost Analysis Inconsistent Across Alternatives

There are several inconsistent unit costs used in the cost estimates that may distort the cost comparison between traditional levee construction and improvements and flood bypasses and levee setbacks.

The first is in the estimated costs for repairing existing levees and constructing new ones. In the cost analysis, the average unit cost for repairing rural levees is estimated to be 2 to 10 times greater for levee setback and bypass expansion projects than similar repairs listed in projects to protect small communities and improve agricultural levees. In fact, levee improvement costs for the bypass and floodway expansion projects are estimated to cost more per mile than levee improvement costs in urban areas (Table 9.4.1).

Similarly, the cost to build new levees for levee setback and bypass expansion projects is listed as approximately twice as much as it is to build new 100-year levees in rural areas.

If the cost estimates for levee upgrades and new levees associated with bypass and floodway expansion projects are in fact so much greater than the costs for similar levees used to protect small communities, rural areas, and urban centers, the reason as to *why* is wholly absent (and there is no technical reason why bypass and setback levees would need to be built to higher standards than those required for small communities or urban areas).

**Table 11.4.1 Estimated Costs for Levee Improvements and New Levee Construction provide by the CVFPP**

Type	Action	Cost Per Mile	Reference
Rural-Agricultural Levee Improvements	Fix Existing Levee	\$0.39M-\$0.48 M	Attachment 8J, Appendix A, Page 4-22
Non-SPFC Urban Levee Improvements	Fix Existing Levee	\$6M-\$8M	Attachment 8J, Appendix A, Page 4-17
Protect Small Communities	Fix Existing Levee	\$6.5 M (range: \$3.6-\$10.8M)	Attachment 8J, Appendix D, Page D-10
SPFC Urban Levee Improvements	Fix Existing Levee	\$13.4M-\$16.1M	Attachment 8J, Appendix A, Page 4-17
System Improvement Levees (bypasses)	Fix Existing Levee	\$14-\$18M	Attachment 8J, Appendix A, Page 4-6
Flood Corridor Expansion (levee setbacks)	Fix Existing Levee	\$15M-\$20M	Attachment 8J, Appendix E, Page E-9
Protect Small Communities	New Levee	\$10.4M (range: \$6.0-\$17.0M)	Attachment 8J, Appendix D, Page D-10
Flood Corridor Expansion (levee setbacks)	New Levee	\$20M-\$25M	Attachment 8J, Appendix E, Page E-9
System Improvement Levees (bypasses)	New Levee	\$22M-\$26M	Attachment 8J, Appendix A, Page 4-6

In addition, fee and title estimates for the bypass expansions (Page 4-2 in Attachment 8J, Appendix A) are inconsistent with the land acquisition costs used in the Flood Corridor Expansion analysis. This section assumes that land acquisition is \$22,000/acre regardless of location in the valley, compared to the values delineated in Table 4-2 which state that, generally, in the locations of the setback projects, land values range between \$10-13,000/acre, though have potential to reach \$17,000/acre for only three of the projects (on the Lower San Joaquin and Feather Rivers).

We believe the unit cost estimate for the same type of improvement should be consistent across alternatives. By using *higher* average cost estimates for levees for new bypass and levee setback projects, and *lower* estimates for the same type of work in all the other alternatives, the Plan introduces a significant bias away from bypass expansions and levee setbacks. Additionally, inconsistent assumed land values introduce further bias against flood corridor expansion.

G\_AR1-29

### **9.5 Folsom Dam Improvements**

The Joint Federal Project (JFP) at Folsom should be considered part of the project, not as baseline, and due to its upfront inclusion, the costs for and benefits from improvements to Folsom Dam are inconstantly analyzed. The Plan states that because Folsom Dam improvements have already been authorized, they should be (and are) included in the no-project condition. This is problematic as the JFP is accounted for in the budget for the SSIA and expand flood system capacity (EFSC) alternatives, but it is included in the hydraulic and risk reduction analysis as part of the no-project alternative. As a result, this project's ability to reduce water surface elevations and risk are not included as part of the CVFPP's benefits even though the project's expenses are part of the cost estimate. This leads to overstating the costs of the SSIA and EFSC and understating the risk reduction benefits.

Furthermore, inclusion of the JFP as part of the baseline could substantially increase the permitting and mitigation burdens and costs associated with implementing important components of the SSIA and EFSC. For example, expanding Yolo Bypass without JFP may arguably create redirected hydraulic impacts, while treating Yolo expansion along with JFP as a single project will be "self-mitigating" because the benefits of the JFP will offset any impacts of expanding the bypass. Therefore, the JFP should be included in the PEIS as part of the project, not as part of the no-project alternative. According to a 2003 SAFCA analysis conducted by MBK, the JFP combined with expansion of the Yolo Bypass lowers flood stage at I Street bridge by four feet, but if the JFP is included in the baseline conditions, it will be more difficult and costly to expand the bypass and realize the enormous flood risk reduction benefits.

G\_AR1-30

### **9.6 Reliance Upon Levee Performance Curves Overstates the Benefits of Levee Improvements and Understate the Benefits of Bypasses and Levee Set-backs**

Levee Fragility Curves are an integral part of the hydraulic analysis and are used to define the probability of failure of the levees systemwide. The CVFPP Levee Fragility Curves were developed using a hybrid

approach, though insufficient data was included in the review document to validate the study results. Additionally, there was no explicit inclusion of uncertainty in the analyses (which helps inform how 'precise' the generated curves are and how much 'spread' in the answer there is). The failure modes were limited to (a) underseepage, (b) slope stability, (c) through-seepage, and (d) erosion, and the generated curves thus ignore other potential failure modes that the system may be exposed to.

The rationale for "failure definition", the assumption that all levees systemwide fail when loaded to 85%, was not clearly established and validated. This is arbitrary and results in overly conservative estimates for how much water surfaces must be reduced to increase safety as projects first have to lower water surfaces down to an 85% loading, and then even farther to calculate a project's effects on safety.

This reliance on levee performance curves, and thus levees, biases the analysis against more resilient strategies such as flood bypasses. It simply defies common sense (and fact) to argue that substantially lowering flood stage in the Sacramento at I Street Bridge does not substantially reduce the risk of levee failure (see referenced report from Technical Advisory Committee on Water Safety in the Netherlands, 2012). Furthermore, it is arbitrary to only include levee upgrades as a means to protect high risk communities considering that reducing water surface elevations by levee setbacks and bypasses could also help communities achieve an urban level of protection. Furthermore, the levee fragility curves were not reported for new and improved levees. The chosen fragility has the potential to skew the results more toward levee strengthening and less toward water surface reductions.

These curves have the potential to directly show the benefits of system bypass features in that the resulting lowered water levels (i.e. a reduction in system demands) correlate to lowered probabilities of failure. This consideration is very important, yet is missing from the evaluation.

G\_AR1-31

### **9.7 Analysis Understates Life and Property Risk in the Following Ways**

The analysis understates levee risk in a number of ways enumerated below. As a result, the risk reduction estimates in chapter 2 may be significantly understated. Refer to Section 14 for further comments on risk analysis.

- Assumes 100% *willingness* to evacuate and an optimistic warning time and evacuation for Natomas Basin.
- The analysis is not based on climate change hydrology.
- The analysis is based on 2000 census data, thereby significantly underestimating the population at risk today.
- Does not consider the ultimate risk of the basins as the result of a built-out condition behind levees.
-

- Assumes mortality rates only for “remaining zone” and not “breach zone,” this oversight could significantly change overall mortality rates as survival rates these areas adjacent to levee breaches are lower due to faster moving and more quickly rising water.
- Discrepancies between CVFPP Life Risk Analysis for Natomas Basin (a 2005 “Urban Flood Scenario” by SAFECA/David Ford Consultants) and a recent assessment by Jonkman et al. in 2012 suggest significant uncertainty in the Life Risk Assessment Method and the potential for DWR to overlook critical factors. For example, the DWR Natomas assessment estimates a 2.5 Annualized Life Risk while the Jonkman study suggests a significantly higher range at 250-1000 fatalities in a 100-year flood.
- The plan does not include risks to the Delta, because it is outside of the planning area—the analysis should account for risk transferred from the planning area to The Delta.
- The analysis does not consider intangible large losses or disruptions like the migration of hundreds of thousands of people to other parts of the country.
- Does not consider environmental clean-up costs or disruption to drinking water supply as were seen in New Orleans after Hurricane Katrina
- The Intangible Damages discussion does not address availability of adequate shelters, hospital beds, or other post-disaster relief resources.

G\_AR1-32 **10. Comments on Optimizing the SSIA**

The SSIA correctly prioritizes urban areas for increased flood protection because deep urban floodplains are where the greatest numbers of lives are at risk and where the greatest property damage would occur. The voters passed proposition 1E to prevent the deep, urban flooding that occurred in New Orleans from occurring in the Central Valley, and it is therefore reasonable to focus flood protection improvements on areas already developed rather than on rural areas.

The SSIA provision of 200-year or even 100-year protection for many rural areas, including large portions of Sutter and Yuba County, may induce growth and therefore ultimately increase flood risk. It is not a wise use of State funds to improve levees in a manner that enables urban development of agricultural land. State investments to increase the level of flood protection would be more reasonable if they were paired with land use regulations or conservation easements designed to limit urban sprawl in these newly “protected” areas. The board should give careful consideration to how any system improvements to decrease the probability of flooding are combined with strong risk management measures to ensure that the flood system improvements don’t simply lure more property owners, and their tenants, into harms way.

The SSIA correctly includes expansion or creation of flood bypasses, but as explained in Sections 7.1 and 9.3 above, incorrectly excludes levee setback projects and investments in several multiple benefit

projects and programs such as the San Joaquin River Restoration project, the BDCP, or the McCormack Williamson project where funding from other programs could be powerfully leveraged to advance flood plan goals.

The SSIA also correctly omits proposals for new storage from the plan. It is simply too expensive, and the flood management benefits are too limited. Equally important, expanding reservoirs would not meet many of the objectives described in the legislation. Most of the existing storage proposals examined in the plan would do little or nothing for the urban areas most at risk. Temperance Flat would have done nothing to limit the 1997 floods on the San Joaquin because those floods were mostly from the Tuolumne. Sites reservoir, as an off-stream storage site would have extremely limited benefits. Raising Shasta would have limited benefits because Shasta has a large flood pool and is already operated to limit flood releases until after flood events have moved downstream. The Joint Federal Project (JFP) at Folsom is essentially new storage and will provide a higher level of flood protection for Sacramento, but it is already under construction. As such, the JFP should be included as part of the plan rather than considered an existing project as discussed in Section 9.5.

The CVFPP and Conservation Framework are written such that the Conservation Strategy will be limited to actions specified in the CVFPP and its SSIA. DWR must show the public how the benefits and costs of the SSIA were evaluated, whether long-term avoided costs were included, and whether elements in each approach were merely added together or considered on their own and combined to different degrees in each approach. The Conservation Strategy needs to be a priority and should be based on a systemwide approach—not just refer to what is in the SSIA.

G\_AR1-33

### **10.1 The SSIA Not Optimized**

The SSIA does not appear to be optimized to balance costs and benefits. As discussed above, it is difficult to optimize an approach without first articulating specific objectives or criteria that an alternative is intended to achieve. Regardless of the lack of specific objectives, the SSIA appears to be a grab bag of measures. The SSIA selects from certain described measures, but the rationale for that selection is not clear. We agree that a hybrid approach that selects the best of the three preliminary approaches makes sense. Furthermore, creating a pallet of measures and then building a solution set from those measures is reasonable. But in selecting the suite of measures, DWR should have conducted a more rigorous assessment of how the pieces fit together.

The SSIA is designed to improve flood risk management, but it does not appear to be optimized for any specific criteria. The selection of elements appears to be a “best professional judgment” rather than a designed outcome. There are no conveyance capacity criteria, no acceptable risk levels, no unavoidable loss thresholds, no loss of life criteria, no cost criteria, and no ecosystem performance criteria. This opens the plan to criticism on all these fronts. As a first approximation of what the flood system might look like with some improvements, the SSIA is instructive. But as a solid foundation for moving forward it lacks substance and rigor. We suggest that the board accept the SSIA only as a preliminary framework



and direct staff to refine the direction of the plan by developing broadly acceptable design criteria. From an ecological perspective, we believe that criteria such as those below would be appropriate:

We suggest that these criteria could be linked to risk reduction criteria, Stage/Flow criteria, or agricultural land preservation to result in multi-objective project zones. For example if a basin had a criterion of reducing stage by 2 feet in the 200-year event, this could be coupled with the ecosystem criteria to identify sites that could accommodate both outcomes. A more fully developed set of criteria would serve as design checks on specific projects. Every project may not contribute to all criteria, and some criteria may apply in only specific reaches of the system. But developing the criteria on a systemwide basis should provide a level of integration that minimizes the chance of a project in one reach hindering performance in another reach.

*Recommendation:* Make a finding that DWR should expedite model projects that feature innovative partnerships between multiple private and public agencies to advance multiple benefit projects.

## G\_AR1-34 **11. Conservation Framework**

The plan should explain the purpose of the Conservation Framework, describe the objectives of the framework, and communicate a strategy for achieving those objectives. Clearly articulating the purpose is absolutely necessary to better inform competing stakeholders as to why the Conservation Strategy is necessary. The Conservation Strategy is not yet complete, but is essential for meeting the objectives of SB 5 and for expediting flood system improvements by reducing the cost and time associated with obtaining permits.

The lack of clarification to date may partly explain why some stakeholders continue to believe that there is no place for habitat in the flood management system. The Conservation Strategy is not yet complete, but is essential for meeting the objectives of SB 5 and for expediting flood system improvements by reducing the cost and time associated with obtaining permits.

Both the plan and the Conservation Framework should: (1) clearly articulate how the Conservation Goals tie in with the primary and secondary goals in the plan, and (2) highlight the conservation goals as central to a flood risk management approach that strengthens ecosystems and protects public trust resources.

The Conservation Framework is a general document that will be revised into a more specific Conservation Strategy by late 2013. It is our understanding that the purpose of the Conservation Framework and Conservation Strategy is to both advance the conservation objectives enumerated in SB 5, as well as to advance cost effective compliance with other state and federal conservation laws such as the Endangered Species Act. From a purely utilitarian perspective, the purpose of the Conservation Strategy is in part to reduce the cost and time necessary to permit the plan. Since permitting costs and delays have become a significant impediment to expeditious improvement of the flood system, the cost and time savings could be very substantial.

The framework document needs to more clearly articulate how advancing environmental objectives as part of the flood plan (not as mitigation) will reduce the costs and increase the benefits of implementation. To better substantiate the purpose and need for the Conservation Framework and strategy, the plan and framework should enumerate the various environmental laws and doctrines that DWR must comply with in implementation of the plan including, but not limited to:

- Clean Water Act.
- Fish and Game Code 5937
- Fish and Game Code 1601
- Public Trust Doctrine
- The Federal Endangered Species Act
- The State Endangered Species Act
- The Migratory Bird Treaty Act

G\_AR1-35 Consistent with purpose articulated above, the goal of the Conservation Framework should be to protect and improve habitat for a variety of sensitive aquatic and terrestrial species protected by state and federal law. As discussed in the goals and objectives section above, this goal must be described using SMART objectives to guide plan development and fulfill the purpose of the Conservation Strategy. Rather than develop entirely new conservation objectives, we recommend that the board include the habitat goals and objectives of the 2006 Central Valley Joint Venture Implementation Plan (CVPIP) for migratory waterfowl and other birds as it relates to wetlands, associated uplands, post-harvest flooded rice and other bird habitat, as well as the CVPIP doubling plan for native anadromous fishes when the board approves the plan in June. Specifically, the plan should use the Central Valley Joint Venture (CVJV) wetland bird habitat, riparian bird habitat, and post-harvest flooded rice and other wildlife compatible agriculture to measure the effects of flood projects on avian conservation efforts and the plan should use the Central Valley Project Improvement Act (CVPIA) doubling goal for native anadromous fishes as a goal of the Conservation Framework and Strategy.

G\_AR1-36 Additionally, we recommend that the board establish a committee of stakeholders and scientists to develop more specific outcome and action-based objectives which describe, more precisely, the extent to which the CVFPP will make changes to the flood system and how these changes will significantly contribute to the overarching objectives for fish, birds, and wetland habitat.

G\_AR1-37 In order to fulfill the purpose of the Conservation Strategy, the plan must provide assurances that plan implementation will result in measurable progress toward plan objectives. Specifically, we would like the framework to include:

- 1) The inclusion of an additional primary goal for the CVFPP “to provide a vision for an integrated and sustainable approach to flood risk management,” as well as specific language indicating how the Conservation Framework and associated conservation goals are integral to that vision.
- 2) A commitment to ensure that the plan will support the CVPIA salmon doubling goal.
- 3) A commitment in the plan to support of the goals and objectives of the Central Valley Joint Venture Implementation Plan

4) Quantitative (SMART) habitat objectives

G\_AR1-38 The framework document should succinctly explain the Conservation Strategy and how the plan will advance both the conservation objectives and the flood management objectives. In our view, the framework should say:

“The general conservation strategy is to design the flood plan so that little or no mitigation is necessary to comply with the Clean Water Act, the Endangered Species Act, and other applicable state and federal laws governing the protection of fish, wildlife, and waters of the United States. The conservation strategy will largely obviate the need for mitigation by specifically developing and refining the flood plan and all flood system improvements to achieve specific, measurable conservation objectives that will unambiguously improve conditions for sensitive species protected by state and federal law.

The CVFPP will advance both the conservation objectives and the flood management objectives by expanding the cross-sectional area of several portions of the flood control system in a manner that reduces dangerous flood stage and velocity, increases flood conveyance, expands the area for floodplain and riparian habitats, creates enough room to accommodate natural hydrologic and geomorphic processes that are essential to sustain native species over the long-term, and decreases long-term operations and maintenance costs associated with erosion, vegetation, and permitting.”

*Recommendations:*

- Add text to the plan to succinctly describe the purpose of a Conservation Strategy in the plan and outline the basic components of such a strategy.
- Make a finding that explains why measurable objectives are essential to a successful Conservation Strategy.
- Adopt a new plan goal to “provide a vision for an integrated and sustainable approach to flood risk management.”
- Adopt the CVJV Goals and the CVPIIP doubling goal for native anadromous fishes as goals of the Conservation Strategy.
- Form a standing committee of stakeholders to develop SMART objectives for the Conservation Strategy consistent with the conservation goals of the strategy and invite staff from DWR to participate in the effort.
- Expedite completion of the Conservation Strategy.
- The plan and board should utilize the corridor management planning approach as a model for regional planning and ensure that each corridor management plan is designed to advance conservation objectives, facilitate permitting, and expedite implementation of flood risk reduction projects.

G\_AR1-39 **12. Guidance for Regional Systemwide Plans**

**12.1. Prioritization**

The plan should prioritize regional planning efforts rather than attempt to advance planning for all nine regions at the same time. We believe that regional planning efforts should start in the lower end of the system and work upstream. Planning for the Yolo Bypass on the lower Sacramento River, the South Delta Bypass on the lower San Joaquin, and the Feather River Corridor downstream of the Yuba Confluence appear to be the most logical places to begin regional efforts. Focusing on regional planning efforts in the lower end of the system should not preclude investment in model, multiple-benefit projects in all regions as discussed in Section 3 of our comments.

G\_AR1-40

**12.2. Develop new, less bureaucratic model for planning and implementing flood system improvements, particularly in rural areas.**

The board and DWR should recommend a less bureaucratic planning model that fosters collaboration between conservation organizations and local stakeholders to develop regional plans. DWR's integrated regional water management grant program could be adapted to serve as a funding and oversight vehicle to support and advance local collaborative planning efforts.

The existing system for designing and implementing flood system improvements is unnecessarily expensive and slow due to a number of state and federal policies administered by the USACE and DWR. There is clearly a role for the USACE in some flood system improvement projects, particularly in urban areas, but it is increasingly clear that many projects can move forward with lower costs if the planning and implementation process is delegated to local governments with clear guidance from the state regarding the types of systemwide objectives that locally driven projects must support to qualify for financial assistance.

A locally driven, grant-funded planning and implementation model is necessary to expedite improvements and lower costs. The CVFPP (or CVFPB) should provide specific systemwide objectives (flood management, conservation, etc.) for different regions and regional stakeholders in collaboration with conservation groups, and resource agencies (DFG, USFWS, NMFS) will develop regional plans to achieve those objectives alongside local objectives.

To qualify for planning or implementation funding from the state, regional planning efforts must pursue a collaborative planning model that involves a diverse group of stakeholders in plan formulation and analysis, including conservation organizations, fish and wildlife agencies, local government, and DWR staff. DWR and the state should not attempt to control or staff the planning processes. Rather, they should allow the local planning effort to retain its own consultants and develop the plan with significant input from collaborating agencies and organizations. DWR staff's

role would be to ensure that the planning processes are collaborative and to provide information about what objective the regional plans should achieve in order to be eligible for state funding.

G\_AR1-41

### **12.3. Systemwide Planning**

The systemwide planning should focus on fully refining and optimizing the SSIA, considering how levee setbacks could be combined with expanded bypass to best advance both flood management and conservation objectives. The results of the systemwide hydraulic modeling and planning should provide quantitative guidance to the regional planning processes, such as the target amount of conveyance capacity for planning. The plan should prioritize regional planning efforts considering systemwide effects rather than attempt to advance planning for all nine regions at the same time. For example, once systemwide objectives are clearly articulated, the priority geographic areas could be identified and time frames for planning and implementation could be established. In addition, The board should explain how the regional plans, SSIA and Conservation Strategy will be integrated.

The board should adopt SMART objectives for plan goals and make clear the systemwide objectives so that regional flood planning efforts can evaluate whether they are aligned with these objectives. These measurable objectives would guide development of regional plans and help prioritize funds according to systemwide priorities. Within 90 days of adopting the CVFPP, the board should develop criteria for regional plans and the criteria should emphasize risk management, resiliency, sustainability, and participation of the broadest spectrum of stakeholders possible for each region. Ideally, the board would develop a model regional plan to illustrate the intent of the criteria. The board should establish timelines for the development of the prioritized regional plans. DWR and the board should empower diverse stakeholders to collaborate in the development of regional plans, and should fund regional planning efforts with grants to non-profits, regional, or local agencies.

G\_AR1-42

### **12.4. Corridor Management Strategy**

Corridor Management Strategies designed to advance conservation objectives and facilitate permitting should be included as an integral part of each regional plan. Conservation objectives should be developed for each corridor as part of the Conservation Strategy and should be used to guide the development of management strategies for each corridor and regional plans for each region.

The plan and board should utilize the corridor management planning approach as a model for regional planning and ensure that each corridor management plan is designed to advance conservation objectives, facilitate permitting, and expedite implementation of flood risk reduction projects.

G\_AR1-43

### **12.5. Eligibility Criteria for Regional Plans**

The board should develop clear eligibility criteria for obtaining state funding to develop or implement regional plans. The criteria should include:

- Regional plans must have a strong risk management component. Regional plans that require state or federal funds to increase protection to 100 or 200-year levels of protection for rural or urbanizing areas should include provisions for agricultural conservation easements, strong land use controls, or building codes, for example, to ensure that state and federal investment does not induce growth and thereby increase flood risk.
- Regional planning processes must be configured to allow public stakeholders a fair and equal voice in plan development to ensure that statewide interests such as wise use of taxpayer dollars or protection of fisheries and other public trust resources are fully considered in plan development.
- SMART objectives for the primary and supporting goals should be developed early in the planning process and refined iteratively as preliminary analysis is concluded.

## **G\_AR1-44 13. Climate Change**

This section outlines information about climate change adaptation strategy that was considered in Central Valley Flood Plan. There was no quantitative analysis or modeling that was used to evaluate the potential effects of climate change on the flood management system. In the absence of quantitative analysis, the report offers three ways in which projects in the flood plan contribute to climate change adaptation:

1. Providing wider bypasses to lower floodwater surface elevations and increase flow carrying capacity and flexibility to deal with higher flood flows
2. Changes in reservoir operations from F-CO and F-BO can provide flexibility and adaptability to changes in extreme flood events
3. The SSIA includes the potential for the state to participate with others in reservoir expansion projects and in obtaining rights for floodplain transitory storage from willing landowners

The section concludes by saying that “in summary, improved climate change information will allow more detailed evaluation of potential climate change impacts on the SPFC and refinement of approaches to manage higher floodflows and sea levels during preparation of regional plans and feasibility studies.”

Suggested revisions:

A minor suggestion would be that although they are interchangeable, “adaptation” is more commonly used in the context of preparing for climate change than is the term “adaption”.

G\_AR1-45

On Page 3-23: We suggest that the sentence “Providing wider bypasses to lower floodwater surface elevations would increase flow carrying capacity and flexibility to deal with higher flood flows that may occur because of climate change.” is changed to read “Providing wider bypasses *and setting back levees* to lower floodwater surface elevations would increase flow carrying capacity and flexibility to deal with higher flood flows that may occur because of climate change.”

G\_AR1-46

On Page 3-23: We suggest that the flood board consider adding a sentence that reads: “*The potential for climate change to increase the frequency and severity of flooding events provides additional motivation to consider reducing flood risk by further limiting urban development in flood prone areas.*”

G\_AR1-47

On Page 3-24: At the end of the last sentence, we suggest adding a sentence to read: “*Because climate change will impact not only flood risk, but also ecosystem function and water supply, there is a need to develop flood projects that in addition to safety can also provide benefits to other sectors.*”

G\_AR1-48

The climate change appendix states: “This report documents an assessment of probable impacts of projected climate change on the ability of the flood management system to provide adequate levels of flood protection. It includes a description of potential climate change effects on flood management, a discussion of the unique Climate Change Threshold Analysis Approach, and presents the results of a pilot study demonstrating the Climate Change Threshold Analysis Approach.” Unfortunately, it is not clear how, if at all, this information was incorporated into the 2012 CVFPP, and specifically how it was used to evaluate the relative performance of the three fundamentally different approaches to flood management which were initially compared to explore potential improvements in the Central Valley. Presumably, one of the pieces of information that went into comparing these three approaches was climate change, but from this document, it is not clear how that comparison was performed. On page 2-26 the report states: “The current 2012 CVFPP will be based on available information and modeling tools, with critical updates and enhancement.” DWR should add a sentence to this paragraph that explains very briefly the process by which this information directly informed the 2012 CVFPP.

It appears that there has been no quantitative analysis of the impact of climate change on the flood system or the three alternative approaches. This should be stated more clearly.

The climate change appendix (page 2-26) did develop a pilot study to demonstrate a quantitative approach for estimating the impacts of climate change, but apparently even the results of this study were not incorporated into the plan.

G\_AR1-49

## 14. Flood Risk Reduction

Through guiding the Central Valley Flood Protection Plan, DWR and the board have an opportunity to take a real leadership role in how flood risk is managed in California for decades to come. The board should therefore leverage this watershed moment by considering the following points and recommended actions.

G\_AR1-50

### 14.1. Plan must define a tolerable level of risk

The CVFPP Urban Levee Design Criteria calls for a minimum level of “protection against a flood that has a 1-in-200 chance of occurring in any given year” (page 2-1). The guidelines warn, however, that “...we should continually seek higher and higher levels of flood protection in order to keep the risk from increasing as we add more people and infrastructure to the floodplain” (pg 1-3). This guidance is unclear and may leave many communities in an ambiguous state as to what is acceptable flood safety in the future.

American Rivers strongly supports the adoption of a risk-based approach to target performance levels. The National Committee on Levee Safety issued a report<sup>2</sup> that provides guidance on safety levels (Tolerable Risk Guidelines, Recommendation 5) based on the potential loss of life. This risk-based guidance allows communities to assess their future growth and development plans and target an appropriate safety level suited for their long-term plan. The risk-based guidance eliminates the need to “continually seek higher and higher levels of [unspecified] flood protection” and gives communities more explicit and appropriate safety targets to strive for.

Over the last 25 years, California’s flood deaths have been far worse than we have historically accepted as a society, which no doubt has informed the call for better flood protection in the Central Valley and the CVFPP. Unfortunately, the CVFPP while reporting substantial increases in life safety over current levels, appears to fall orders of magnitude short of achieving the accepted safety standards, even according to its own analyses. We believe that accepting this plan without revisions to bring safety standards akin to those used for dam safety in the US and flood safety in other developed nations would be a disservice to the people of California—both those immediately exposed to flood risk, and to the society as a whole.

Figure 14.1.1 shows a graphical representation of the Tolerable Risk Guidelines from the National Committee on Levee Safety report (frequently referred to as an f-N plot). The y-axis represents the annual flood likelihood (such as the 100-year flood) and the x-axis represents loss of life as a result of flooding. We have added data on the diagram (blue ovals) depicting historical flood events in California

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<sup>2</sup> National Committee on Levee Safety. “Draft: Recommendations for a National Levee Safety Program,” January 15, 2009. Available from: [http://www.leveesafety.org/docs/NCLS-Recommendation-Report\\_012009\\_DRAFT.pdf](http://www.leveesafety.org/docs/NCLS-Recommendation-Report_012009_DRAFT.pdf).



and the associated number of casualties. That most of these deaths fall in the “unacceptable” region for the NLCS illustrates the need for more effective and explicit risk guidelines than the unwritten ones guiding us to date. All mortality numbers used in this figure come from those provided in Table 1-1 of Attachment 8G of the CVPFF, and the estimated recurrence intervals (annual likelihoods) were derived from USGS gauge station data.

Furthermore, the annualized life loss estimates in the CVFPP remain well outside the bounds for tolerable loss of life as defined by the National Committee on Levee Safety.

We have added a line depicting the risk level corresponding to a 1-in-200 year event. As can be clearly seen on Figure 1, this standard would be considered unacceptable to the National Committee on Levee Safety and is woefully insufficient to protect our densely populated urban areas.

Senate Bill 5 calls for the 200-year recurrence interval to be a MINIMUM level of protection, not a maximum. Achieving the 200 year level of protection simply limits the probability of flooding. It does not necessarily reduce the consequences of flooding and therefore does not actually reduce risk in areas where the increased protection induces urban development of floodplains. The performance levels should either be directly correlated to the consequences, which may require a higher level of protection in densely urbanized, deep floodplains or increases in levels of protection for existing urban or urbanizing areas should be paired with strategies to management the consequences of eventual flooding such as flood insurance, building codes land-use restrictions, or conservation easements.

### Tolerable Risk Guideline Recommendations

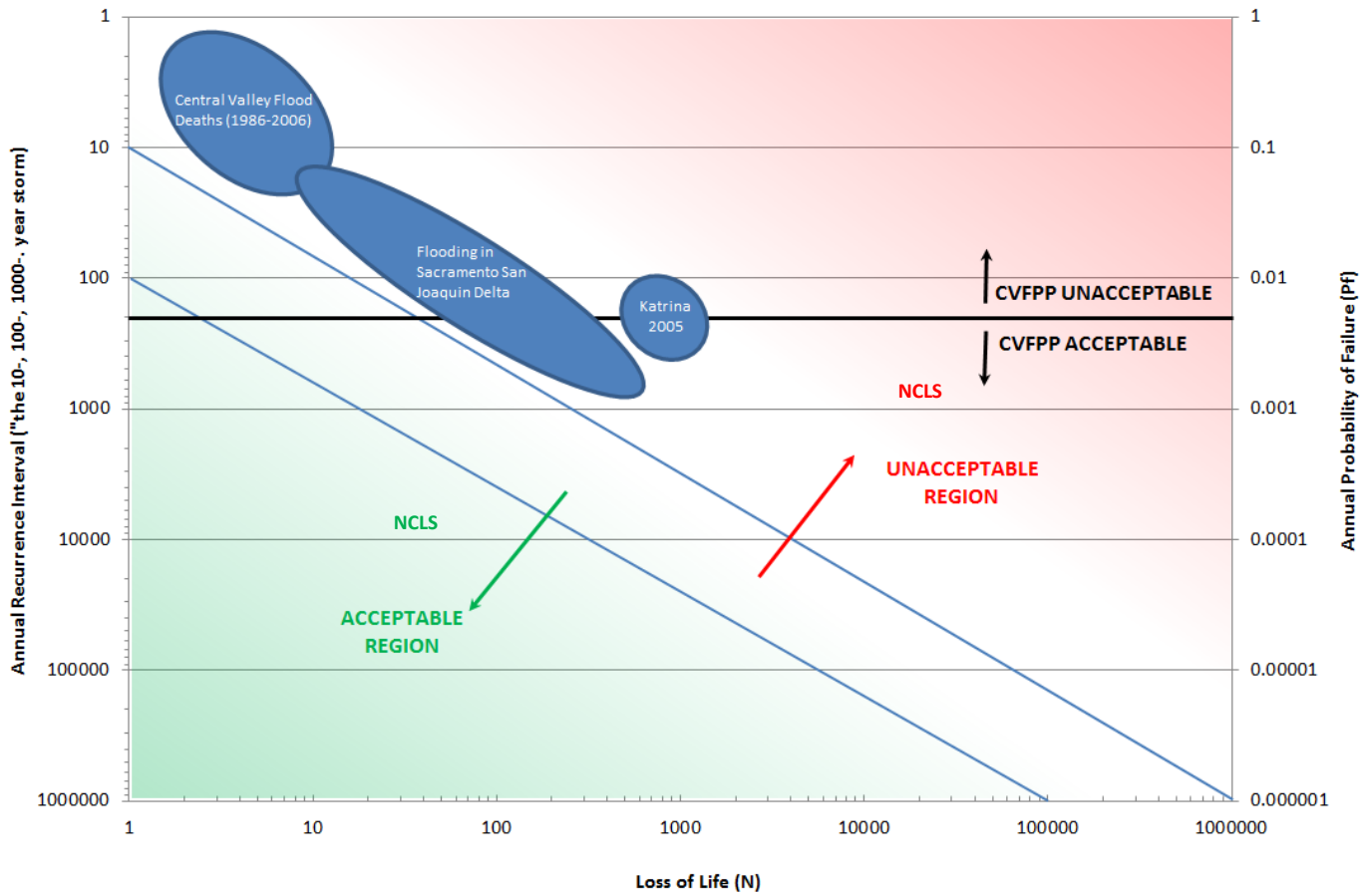


Figure 14.1.1. Tolerable Risk Guidelines based on the National Committee on Levee Safety, with modifications for the CVFPP safety guidelines as well as plots of Hurricane Katrina (New Orleans 2005), Central Valley flood deaths (1986-2006), and estimates of loss of life due to flooding in the Sacramento-San Joaquin Delta (Jonkman et al 2012).

G\_AR1-51

#### 14.2. Plan May Increase Risk by Overreliance on 200-year Levees.

Though unintended, the Central Valley Flood Protection Plan may actually increase flood risk in the region by inducing growth behind new 200-year levees. While a 200-year levee reduces the likelihood of flooding, it increases risk by permitting urbanization (dense development and critical infrastructure) in these floodplain areas without secondary risk management measures or limits to growth. A levee failure during the winter flood season could rapidly flood homes and businesses to depths of six feet or more with cold water at 55° F. Considering a 200-year levee has a 39% chance of being overtopped in a 100-year period (or 14% over 30 years), the fatalities, as well as economic and societal damage, that would ensue could be catastrophic.

G\_AR1-52

### **14.3. The CVFPP Must Consider the Full Set of Risk Management Tools**

We welcome the plan's efforts to consider risk reduction measures like bypasses, but in focusing mostly on flood prevention, the plan has not considered the full set of risk management tools to manage "residual risk." Operations and maintenance are necessary, but offer nothing in the way of public safety or property protection when a levee overtops. Other tools, such as flood insurance, mandatory building codes, and land use restrictions may be outside of the power of DWR to impose, but they may be essential or more efficacious for managing risk. For example, requiring flood insurance as a condition of levee improvements could reduce the financial liability for both individuals and tax payers. Elevating buildings, requiring vertical evacuation, and using flood resistant building materials would significantly improve public safety by giving people a safe place to go during high water, and by reducing economic damage when a levee overtops. Land use measures that limit urban uses in undeveloped deep floodplains or lands immediately adjacent to levees could improve public safety and reduce economic damage by limiting exposure in the first place in those areas most vulnerable to rapidly rising and fast flowing water.

G\_AR1-53

### **14.4. The CVFPP Should Consider Community Resiliency and Recovery**

The CVFPP analyses do not explicitly consider the time it would take for communities to recover after a significant flood. Community recovery can be a long and difficult path—for example New Orleans saw the largest in-country migration since the Civil War following Hurricane Katrina, and many former residents will never return. Cost estimates, and the FDA and Life Risk Analysis, tend to focus on replacement costs only and neglect the long-term effects and societal damages to urban and rural areas, like the 124,000 jobs lost in New Orleans following Hurricane Katrina or the more than 1,000,000 people who were displaced (ASCE 2007). A flood that damages irrigation delivery infrastructure may not directly harm crops, but if the irrigation supply cannot be repaired before hot weather, total crop loss could be the result. This could translate into depressed farm revenues for years, producing multiplier impacts that depress local economies for years.

G\_AR1-54

### **14.5. Risk analysis Underestimates Risk**

We have reason to believe that the risk analysis methods used in the CVFPP may have underestimated the true risk considering life loss and other damages and we request a peer-review. The following points highlight the uncertainty and could have effects on the real loss of life and damages experienced during a flood. See section 12.3.1 and the following comments.

- Inputs to the Life Risk model are based on 2000 Census data and don't account for new development behind levees since 2000, leading to an underestimation of the potential loss of life during a flood. It is possible to accommodate for the growth and still maintain data at the fine level desired despite DWRs' reluctance to include do so.
- The evacuation efficiency is questionable for the following reasons:

- Optimistic warning times may be used for certain areas like Natomas (Jonkman et al 2012) and because the model assumes a 100% willingness to evacuate.
- A recent study (Ludy & Kondolf 2012)<sup>3</sup> showed 17% of residents would not evacuate if advised,
- Many news reports during floods often mentions individuals who try to “wait it out” and have to be rescued in the end. Lastly the model assumes a single mortality rate for an entire impact area despite the reality that mortality rates for adjacent levee breaches are significantly higher than the rates in the rest of the floodplain.
- One recent publication (Jonkman et al 2012)<sup>4</sup> estimates twice as much loss of life in the Natomas Basin compared to the CVFPP analysis.
- Flood Damage Analysis does not consider the full range of damages or consequences seen in large flood events like Katrina, or seen in risk assessment methods used by other countries like the Netherlands<sup>5,6,7</sup>
- Massive job loss, massive migrations, short and long terms health effects due to contaminated waters
- Emergency response is considered an effective tool, however more Katrina fatalities occurred in evacuation than due to flood exposure.
- Analysis does not provide adequate discussion on availability of emergency shelters
- Damage analysis does not capture or communicate full Societal Risk. Annualized deaths and damages do not convey the same message.

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<sup>3</sup> Ludy, J. & Kondolf, GM (2012). Flood risk perception in lands "protected" by 100-year levees. *Natural Hazards*. 61:(2), 829-842 DOI: 10.1007/s11069-011-0072-6

<sup>4</sup> Jonkman, SN. Hiel, L., Bea, R., Foster, H., Tsioulou, A., Arroyo, P., Stallard, T., and Lyndsie Harris (2012) Integrated Risk Assessment for the Natomas Basin (CA): Analysis of Loss of Life and Emergency Management for Floods. *Natural Hazards Review* doi:[http://dx.doi.org/10.1061/\(ASCE\)NH.1527-6996.0000079](http://dx.doi.org/10.1061/(ASCE)NH.1527-6996.0000079)

<sup>5</sup> American Society of Civil Engineers (2007). *The New Orleans Hurricane Protection System: What went wrong and why?*

<sup>6</sup> Technical Advisory Committee on Water Safety in the Netherlands (TAW). (2012) Technical Report on Soil Structures. Accessible: <http://www.enwinfo.nl/engels/downloads/TRSoilStructures.pdf>

<sup>7</sup> Vrijling, H 2001. Probabilistic design of water defenses in the Netherlands. *Reliability Engineering and System Safety* 74 :337-344<sup>4</sup>

G\_AR1-55

## **Appendix I**

### **Comments on the Technical Appendices as they pertain to the CVFPP**

**Volume I**

Not Reviewed

**Volume II**

Not Reviewed

G\_AR1-56

**Volume III**

**Attachment 8: Technical Analysis Summary Report**

We recognize that modeling the hydrology and hydraulics of the entire Central Valley SPFC system is a complex undertaking. However, it is important to reinforce statements throughout the 2012 Central Valley Flood Protection Plan regarding the preliminary nature and limited detail of the modeling conducted to inform evaluations of the four approaches described in the plan. The documentation of these modeling analyses in Attachment 8 spans hundreds of pages, which could convey the impression that exhaustive modeling has already been completed and that more detailed evaluations would not be possible with available time and resources.

However, upon closer examination, it is clear that a substantial portion of the modeling documentation in Attachment 8 is comprised of a repetition of basic descriptive information about the four flood management approaches. A large portion of the remaining documentation in Attachment 8 is a summary of the Comprehensive Study models that were adapted for use in Central Valley Flood Protection Plan evaluations. The appendix itself acknowledges that, in most cases, more detailed plans and projects will require more detailed hydrology.

In summary, the extremely limited detail about modeling specifically developed for development of the plan indicates that the scope of new modeling for this effort was limited and that more detailed and refined modeling should be considered before flood management approaches such as setback levees are eliminated from consideration in the State Systemwide Investment Approach.

Core chain of analyses includes “unregulated” hydrology (synthetic hydrology from Comp Study), reservoir models (HEC-5 and HEC-ResSim), hydraulic models (Comp Study UNET models for rivers and RMA for Delta), geotechnical levee performance characterization, floodplain hydraulic models for out of bank flows (FLO-2D), and finally risk analysis (HEC-FDA).

G\_AR1-57 **Attachment 8A: Hydrology**

This is unclear: "Natural flow frequency curves are strictly rainflood frequency curves. Snowmelt runoff is not directly incorporated into the analysis."

Pg. 21: Describes how the Comp Study used a "composite floodplain" concept which "represents the maximum extent of inundation possible at all locations for any simulated synthetic exceedence frequency storm events."

G\_AR1-58 **Attachment 8B: Reservoir Analysis**

Pg. 1-1: For the 2012 CVFPP, only changes in reservoir operational criteria (i.e., flood storage allocation and objective release) were considered to provide downstream flood management benefits for this reconnaissance level analysis.

Pg. 1-1: The objective of the analysis described in this attachment was to demonstrate whether there is any potential improvement in systemwide flood management (e.g. lower downstream peak flood stage) from changes to reservoir operational criteria. Results from this analysis provide insight for more detailed and coordinated studies to explore operational criteria changes.

Pg. 1-2: Any changes would also require coordination among ongoing reservoir studies such as the California Department of Water Resources' (DWR) existing Forecast-Coordinated Operations (F-CO) Program, planned Forecast-Based Operations (F-BO) Program, and ongoing System Reoperation Program.

Pg. 1-2: Reservoir operational criteria changes were not moved into SSIA because this plan is preliminary, findings are uncertain, and coordination is needed.

G\_AR1-59 Pg. 2-1: It is recommended that future detailed and coordinated studies occur to consider other potential effects (e.g., water supply, environmental) and to explore the feasibility of modifying operational criteria at individual reservoirs.

Pg. 2-1: Reservoir operational criteria changes can also provide greater flexibility to accommodate future hydrologic changes, (e.g., climate change), provide greater system resiliency, and benefit the ecosystem.

G\_AR1-60 Pg. 2-2: The 2012 CVFPP recommends an overall system reservoir analysis to holistically evaluate potential integrated solutions, such as the one DWR is currently formulating under its System Reoperation Program.

Pg. 2-2: EFSC includes "modifications to the reservoir release schedule and flood storage allocation at Lake Oroville (equivalent to an additional 200,000 acre-feet of flood storage), and coordinated operation with New Bullards Bar Reservoir, to reduce flood stages on the Feather River during a 200-year (0.5 percent annual exceedence probability (AEP)) flood event." AND "...in the San Joaquin River Basin, the

State would partner with interested reservoir operators to increase the flood storage allocation at New Don Pedro, Friant, and/or New Exchequer dams by about 400,000 acre-feet to effectively manage the 100-year (1 percent AEP) flood event at these reservoirs.

Pg. 2-2: Reservoir reoperation not moved into SSIA.

Pg. 2-3: The integrated solutions could include actions such as increasing downstream transitory storage, constructing setback levees, and increasing upper watershed storage to maximize flood management and other benefits.

G\_AR1-61 **Attachment 8C: Riverine Channel Evaluations**

Pg. 1-1: H&H from the Comp Study (except for new models of Calaveras River and Bear Creek).

The No Project condition (in the hydraulic modeling) includes the following:

- Levee improvements in south Yuba County implemented by the Three Rivers Levee Improvement Authority (TRLIA) since 2004 (TRLIA, 2011)
- Natomas Levee Improvement Program by the Sacramento Area Flood Control Agency (SAFCA) (SAFCA, 2011)
- Folsom Dam Joint Federal Project to improve the ability of Folsom Dam to manage major floods by allowing more water to be safely released earlier in a storm event, leaving more storage capacity for capturing peak inflow (Reclamation, 2009)
- Levee improvements along the American River to safely pass a flow of 160,000 cubic feet per second (cfs) as part of the American River Common Features Project (SAFCA, 2011)
- Marysville levee improvements (USACE, 2009b)

Pg. 3-4: Used UNET models for both Sacramento and San Joaquin watersheds.

Pg. 3-9: Setbacks only considered in EFSC alternative, and only at RMs 111.25 – 169.5 and 199.5 – 197 on the Sacramento, 0 – 24.5 on the Feather, 72.5-81.5 and 99 – 115 on the San Joaquin.

Pg. 3-9: Bypasses (widen Yolo Bypass and lengthen Fremont Weir; widen Sutter Bypass; Feather to Butte Basin (Biggs) Bypass, and a widened Paradise Cut) considered in both EFSC and SSIA.

Pg 3-9: Widen Sacramento Bypass and gates only in EFSC.

Pg. 3-9: Floodplain storage (Sutter Butte Basin, Feather River Basin, Elkhorn, Merritt Island, Roberts Island, and the San Joaquin River between the Merced and Tuolumne and the Tuolumne and the Stanislaus) only considered in EFSC.

Only modeled 10 year flows and greater.



Pg. 3-16: “Enchance” Flood System Capacity

Pg. 3-17: Cross sections were modified in specified reaches (Table 3-1) of the Sacramento and Feather rivers to represent levee setbacks. Cross sections were also modified in the Sutter, Yolo, and Sacramento bypasses to represent widening of the bypasses. Cross sections were added to represent the bypass between the Feather River and the Butte Basin.

G\_AR1-62 **Attachment 8D: Estuary Channel Evaluations**

Not Reviewed

G\_AR1-63 **Attachment 8E: Levee System Performance**

See Section 9.6

G\_AR1-64 **Volume IV**

**Attachment 8F: Flood Damage Analysis**

See Section 13.3.1

G\_AR1-65 **Attachment 8G: Life Risk Analysis**

Section 2.3.1, 13.2, 13.3.1, 19 these sections will be further revised—Rune & Katie & Jessica

G\_AR1-66 **Attachment 8H: Regional Economic Analysis for SSIA**

Not Reviewed

G\_AR1-67 **Attachment 8I: Framework for Benefit Analysis**

Overall, the benefits analysis is rather vague and conceptual. Benefits are not assigned to specific elements of any approach, and the analysis pertains mainly to the SSIA with only life risk avoidance and some damage avoidance benefits described for other approaches. The claimed benefits are not supported with documentation beyond the risk assessment and regional economic analysis, leaving most of the benefits discussed as assumed outcomes of the SSIA. There is no consideration of flood management goals (e.g. water surface elevations) nor the benefits of one approach compared to

another. This could bias plan preferences toward certain measures over others without measurable criteria. Several types of benefits are mentioned but few are specifically assigned to the SSIA or another approach.

G\_AR1-68 **Quantitative Benefits:**

The benefit analysis looks at benefits as either avoided damages or specific gains. Part of the analysis looks at all approaches and other parts consider only the SSIA. Quantitative benefits are evaluated in three areas: life risk, damage, and regional economic gains. The benefits for life risk and damage are simply the difference between no project (current conditions) and the approaches based on avoiding the amount of damages determined in the risk analysis. The quantitative damage avoidance benefit for agriculture is limited to direct crop loss from the damage assessment.

G\_AR1-69 The benefit analysis assigns Early Implementation Projects to SSIA, but not to the current condition/no project. The benefits the EIPs increase the benefits to the SSIA and lower the no project baseline resulting in greater benefits for all approaches as compared to those benefits provided by the current condition.

G\_AR1-70 For regional economic benefits, only the SSIA is considered. The benefits included are limited to construction stimulus and indirect avoided business losses. Direct business loss is factored in as part of the avoided direct damages. All the benefit values are only relevant in relative terms. They are not predictive estimates of actual benefits. They are presented to provide a rough comparison of the approaches.

G\_AR1-71 While the analysis assumes that the potential for flood-impacted industries to recover to pre-flood levels would be improved, no analysis supports this assumption ( I assume the opposite, that if we armor the urban areas and they still get flooded, the armoring will have created a more devastating flood and make it harder to recover than if more frequent less damaging floods had preceded the design flood).

G\_AR1-72 **Qualitative Benefits**

The analysis also mentions several qualitative benefits. None of these are associated with specific project elements, however, and they are presented as conceptual attributes that *might be able* to be realized.

The qualitative benefits discussed include: damage avoidance (not previously included in the direct damage avoidance benefit), avoided release of hazardous materials, avoided loss of livestock, infrastructure damage, and loss of public service such as emergency service, transportation, education, health care, utilities (water, wastewater, electricity, natural gas, communications). Agricultural benefits mentioned include ease of obtaining crop insurance and production loans, retained employment in processing and service sectors, and agricultural land conservation through easements.

Avoided costs mentioned include emergency response during a flood and some post-event cleanup, reduced erosion repair through realignment and widened corridors, avoided costs from shortening levees through setbacks, and unspecified maintenance reforms and physical modifications. However, levee realignments, widened corridors, and shortened levees did not seem to appear in the SSIA cost estimates. It is therefore unclear whether there is a labeling inconsistency or whether this is simply a conceptual presentation, speculating that these benefits might be able to be attained.

Other cost savings are also mentioned including those due to efficiency improvements, hints of regional permits, and a more flexible operating framework. No specifics of the benefit or the character of the element are given. Though this section does state that “improving habitat extent, diversity, condition and connectivity can improve implementation and operation,” no examples are provided and no parts of the system are identified where these improvements are expected to arise.

One paragraph on climate response notes that bypasses/corridors provide lower water stages affording better response to higher peaks created by climate change.

Ecosystem services are mentioned but deferred until 2017. Within this discussion it states that two types of habitat are to be created: riparian/floodplain forest, and fish rearing habitat, though locations are not provided other than the general acreage given in the main document. The analysis also includes unspecified fish passage improvements at diversions, flashboard dams, structures, and pumping plants aimed at connecting the Delta to Butte Creek. It assumes fish benefit from more frequent bypass flows, which is probably a reference to the BDCP desire to increase the frequency of flooding in the Yolo Bypass. Nothing in the SSIA, however, advocates for increased frequency of flooding or more frequent spills into the bypasses.

In terms of water supply, the analysis claims that a few hundred thousand acre-feet could be made available by SSIA reservoir forecast based operations and groundwater recharge in floodplain.

G\_AR1-73 **Attachment 8J: Cost Estimates**

See Sections 9.3 and 9.4

G\_AR1-74 **Attachment 8K: Climate Change Analysis**

See Section 13

G\_AR1-75 **Summary of the report:**

This report addresses how climate change will affect the ability of the Central Valley flood management system to provide protection. There are three main sections to the report. The first provides a

literature review of the projected changes in precipitation and runoff patterns, sea level rise, and economic development that are expected as a result of climate change. The information presented here provides a good general overview of the three major impacts that climate change will have on flood management. Unfortunately, there is little specificity and it is not clear how this information informed the 2012 CVFPP analysis

The second section provides a detailed description of a Climate Change Threshold Analysis Approach for evaluating the effects of climate change on flood management. While this approach does appear useful, it is not incorporated into the 2012 CVFPP, but the report does say: “..the 2017 CVFPP will benefit from the development of the Climate Change Threshold Analysis Approach.” (Page 2-26).

The third is a pilot study of the Climate Change Threshold Analysis Approach for reservoir operations at Oroville Dam on the Feather River.

G\_AR1-76 **Suggested revisions:**

On **Page 1-1** the report states: “This report documents an assessment of probable impacts of projected climate change on the ability of the flood management system to provide adequate levels of flood protection. It includes a description of potential climate change effects on flood management, a discussion of the unique Climate Change Threshold Analysis Approach, and presents the results of a pilot study demonstrating the Climate Change Threshold Analysis Approach.” Unfortunately, it is not clear how, if at all, this information was incorporated into the 2012 CVFPP, and specifically how it was used to evaluate the relative performance of the three fundamentally different approaches to flood management which were initially compared to explore potential improvements in the Central Valley. Presumably, one of the pieces of information that went into comparing these three approaches was climate change, but, from this document, it is not clear how that comparison was performed.

G\_AR1-77 On page 2-26 the report states: “The current 2012 CVFPP will be based on available information and modeling tools, with critical updates and enhancement.” **We suggest adding a sentence to this paragraph that explains very briefly the process by which this information directly informed the 2012 CVFPP. It appears that there has been no quantitative analysis of the impact of climate change on the flood system or the three alternative approaches. This should be stated more clearly.**

G\_AR1-78 **Page 2-26:** “While available information and modeling tools do not support a complete application of the this approach for the 2012 CVFPP, to demonstrate the concept, a pilot study has been conducted and documented in the following chapter of this report.” **We suggest adding the sentence: “The results of this pilot study have not been incorporated into the 2012 CVFPP.”**

G\_AR1-79 **Attachment 8L: Groundwater Recharge Opportunities Analysis**

Not Reviewed

G\_AR1-80 **Volume V**

**Attachment 9: Supporting Documentation for Conservation Framework**

See Section 11.

G\_AR1-81 **Attachment 9A: Regional Advance Mitigation Planning**

Not Reviewed

G\_AR1-82 **Attachment 9B: Status and Trends of the Riparian and Riverine Ecosystems of the Systemwide Planning Area**

**Chapter 1: Introduction**

The purpose of the Status and Trends report is not clear. Is it a problem statement explaining what is wrong with the existing condition? Is it intended to establish baseline conditions? Is it intended to serve as a conceptual model that explains why the system has declining species and habitats? We think you are trying to do all of the above, but it is not clear. Instead, the stated purpose is to serve as the basis for the Conservation Framework and this chapter should consider how to do so more explicitly.

Section 1.5 states:

“This report is not intended to be an exhaustive description of the SPA’s riparian and riverine ecosystems. Rather, it focuses on describing key relationships among the Sacramento Valley and San Joaquin Valley’s river flows, geomorphic processes, and ecosystem responses that are relevant for understanding how these ecosystems function and how key stressors have modified these ecosystems historically and continue to modify them today.”

This chapter should be revised to explain how this stated purpose advances the Conservation Framework for the flood plan.

G\_AR1-83 **Chapter 2: Historical Modifications to the Riparian and Riverine Ecosystems**

The text of Chapter 2 does not clearly target the description of the key *relationships* between the rivers, flows, geomorphic processes, and ecosystem responses as promised in the introduction. The text is

mostly descriptive of ecosystem characteristics, rather than relationships, and is only marginally better than boiler plate.

G\_AR1-84 The descriptions in this chapter are inconsistent, uneven, and mostly limited to two reaches of the river system. The Sacramento section focuses mostly on the mainstem and spends a large amount of time discussing geologic controls and vegetation, and very little time on hydrologic changes or salmon. The chapter includes some detail about certain topics but no acknowledgement of really significant problems:

- i. Nothing regarding the hydrologic alteration on the Sacramento with the exception of the clause “the frequency and duration of inundation may be reduced compared to conditions before 1850.”
- ii. Hardly any mention of salmon and nothing about other native fish.
- iii. Nothing about invasive species.

Rather than attempting to provide an incomplete and inferior quality historical account, it would be better to simply reference the dozens of studies that have previously described historical conditions and show the before and after maps created by the Bay Institute. This would form the basis for articulating a simple problem statement regarding the existing status and trends, which, in turn, could form the basis for identifying plan objectives (see comments on Conservation Framework). Alternatively, one could rewrite along the lines as suggested in Appendix A.

G\_AR1-85 The San Joaquin section is mostly reprint of a 1998 Jones and Stokes report (which is superseded by the far more definitive 2002 Background Report) and focuses largely on the river between Friant Dam and the Merced. Very little information on the tributaries, salmon, or Delta issues is included. The structure and content of the San Joaquin text is quite different than the Sacramento section:

- i. Provides no discussion or information, aside from the table, on the tributaries with the exception of some text on gravel mining.
- ii. As with the Sacramento section, the analysis should dispense with the description and rather reference all the previous work on this subject, starting with the Background Report.
- iii. Although the text mentions the bypass system, it doesn’t explain how it works or how it impacts the river. At a minimum, the text should explain how many miles are bypassed.

We recommend content to emphasize the links between processes in Appendix A of these comments. There is also a lot of good site-specific text in section 3.5 that would be better integrated into this descriptive chapter.

G\_AR1-86 **Chapter 3: Basis for Status and Trends**

The focus on link between hydrologic, geomorphic, and ecological processes is excellent, but work is needed in execution of this concept. Although hydrologic alteration of moderate pulse flows is clearly altered by flood management alterations, the nexus between base flows and the flood plan is more

tenuous. Focus on factors that have a closer link to flood management and acknowledge that other important factors, like base flow, are largely outside of the flood plan.

This section is really more about conceptual models and providing a basis for metrics than it is a basis for status and trends. It would be better to treat this section more as a *description of the problem* statement and a conceptual model regarding how natural river systems function and how anthropogenic stressors disrupt these processes. This could then be followed by a third section that briefly summarizes the status of natural processes and disruptive stressors in each reach. In its current form, the chapter bounces back and forth between conceptual concepts and site-specific descriptions.

G\_AR1-87 Not all flow metrics have a clear nexus to the flood system. Bankfull and floodplain inundation are clearly related to flood infrastructure and operations such as reservoir release rules and levees. But base flow is determined by water supply operations or instream flow requirements and really has no nexus with flood management.

**Section 3.2:** The bankfull inundation description is problematic. Leopold (1964) correlated bankfull with the 1.5-2 year instantaneous peak flow, not with “storms occurring more frequently than every 2 years.” The 1.5 annual maxima is a true metric. Storms occurring more frequently than every 2 years can vary widely in antecedent condition, area, duration, temperature, etc. They are a very poor metric.

The remainder of this section could more clearly and strongly support the basis for status and trends by better distinguishing between bankfull process and floodplain inundation. The two are related and often occur at similar discharges, but provide different *functions*. The text should be rewritten to distinguish them by function. *Floodplain inundation* flow causes the floodplain to become inundated and leads to all of the beneficial biogeophysical processes associated with inundation. The *bankfull* flow on the other hand, mobilizes the bed and banks – reshaping channel and floodplain morphology.

The first paragraph of 3.2.2 on bankfull flow is problematic:

“The flow that occurs, on average, once every 1.5 to 2 years is often referred to as the bankfull flow (Leopold et al., 1964), even though a 1.5- to 2-year recurrence interval flow may not represent an actual bankfull condition in many stream reaches.”

The second clause adds confusion and it is unclear why it was included. Hydrologists today still cite Leopold 1967. The author may be trying to say that the present day 1.5-2 year flow is not the actual bankfull either due to anthropogenic channel changes or flow alterations. The basic idea, however, is that *over time*, the channel will form a new channel that is sized to

approximately the 1.5-2 year event *unless* the altered channel and/or hydrology are totally out of equilibrium. See below.

It does seem true that bankfull in lowland depositional reaches, particularly near the Delta, is associated with a much more frequent discharge than the Q1.5 that Leopold described for gravel bedded rivers. If this is what the author was trying to say, more elaboration would be valuable and very relevant to this section. If the two key hydrologic processes are bankfull and floodplain inundation, it is really important to distinguish between them. If floodplain inundation can occur at a relatively greater rate in the lowland depositional reaches where it occurs for a longer period of time to lower drainage gradients, then we should focus restoration of that process in those reaches.

“A bankfull flow event can occur at any time during the rainy season. It lasts for a variable duration, from hours to days or weeks, and exhibits a variable rate of flow, depending on precipitation patterns and reservoir storage capacity.”

The bankfull flow can happen any time during the rain *or snow melt season*, not just the rainy season. The 1.5 – 2 year metric is probably more relevant to snow melt systems where Leopold did his research. The bankfull metric refers to the instantaneous annual maximum flow (annual maxima). While it is true that the river can flow at or above the Q1.5 for days or weeks, bankfull is not variable. More importantly, bankfull is a *concept* that applies to natural systems or normally distributed hydrologic events. Highly managed hydrology from reservoir operations is a statistical game changer and often results in a Q1.5-2 that doesn't have anywhere near the energy or volume necessary to perform the functions of bankfull flows – floodplain inundation and bed mobilization. For example the pre-dam Q1.5 at Friant gage was approximately 12,000 cfs and the post dam Q was 250 cfs – two orders of magnitude reduction. Although 250 cfs is the new Q1.5, it is not the “bankfull discharge.”

The second paragraph of 3.2.2 is much better.

G\_AR1-88

**Section 3.3:** The geomorphic section focuses on the middle Sacramento. Instead, it should just explain the importance of geomorphic processes generally and describe how they differ from alluvial transport reaches, low-land depositional reaches, and tidal reaches. All alluvial and tidal systems migrate or change over time, but they do so at different rates because of different energy gradients. While it may be true that the Sacramento is one of the few large rivers in the Central Valley where it is still easy to observe, it is still highly altered. Even if it were not altered, it should not serve as the model for all geomorphic process restoration in other types of reaches.



This section's description of geomorphic processes on the middle Sacramento is misleading (Section 3.3 fourth paragraph). This reach is not an "actively meandering channel with point bars on the inside of meander bends and active floodplain and older terraces on the outside of meander bends." It may be possible to see relicts of the old form and process and evidence of recent mobilization, but the system is highly altered and constrained by upstream reservoir operation and bank revetment. The next sentence is: "The river channel migrates across this floodplain to the limits of the meander belt, constrained only by outcrops of erosion-resistant geologic formations or artificial bank protection." Anyone that has canoed this reach knows that bank revetment is a common feature.

G\_AR1-89

**Section 3.4** is excellent but is apparently more focused on the Sacramento than the San Joaquin. More examples and citations from the San Joaquin (2002 Background Report or other publications) would be useful.

G\_AR1-90

**Section 3.5** is not quite as strong as 3.4. It still suffers from neglect of the San Joaquin. See Cain 2002 for a discussion of high IRI on the San Joaquin system.

G\_AR1-91

**Section 3.5.2** on geomorphic effects has lots of text that belongs in section 3.2 and is somewhat repetitive of 3.2.

G\_AR1-92

**Section 3.5.2** alternates between conceptual material that should go in 3.2, descriptive reach by reach, and discussion of stressors effects that seem appropriate for this section.

G\_AR1-93

#### **Chapter 4: Metrics chapter**

The metrics seem unfounded and it is unclear as to how they are related to any of the objectives. We applaud the focus on geomorphic and hydrologic processes, but metrics should be linked to SMART objectives which the framework is lacking (see above comments on Conservation Framework). Conservation objectives are not even stated in this chapter. Although this chapter provides a fair amount of information on applying the metrics to the current status and trends, isn't the purpose of the metrics to measure plan implementation? Presumably it is good to show some sort of baseline, but the status and trends portion of the report really isn't that relevant and many of the metrics may be off base because they don't have a clear nexus with flood management.

**Page 4-2:** Median flows do not appear to be a good metric because there is no clear nexus with the flood program. The flood system and operations are not primary drivers of median flows. Median springs could be a better metric, but the Conservation Framework should focus on elements that have a *clear nexus* with flood management and acknowledge where the Flood Plan Conservation Strategy will not significantly shift conditions such as median flows or base flows.

This chapter will be most useful to the CVFPP if it is rewritten according to the following:

- i. Identify metrics that are specifically related to objectives.
- ii. Provide metrics that are supported by the conceptual models (or basis) provided in Chapter 3.
- iii. Provide metrics that have a nexus with the flood plan, not factors such as median flows that the flood plan is unlikely to change.
- iv. Don't repeat conceptual basis for metric in this chapter. That is the title of the previous chapter.
- v. Metrics chapter should not be based solely on one statistical method (IHA) or spend time explaining how one method works.

G\_AR1-94 Despite some of the critical remarks and suggestions above, the chapter provides some good content and insights that should be incorporated in Chapters 2 and 3. For example, the observation:

“The duration of the high pulse flows increased after the construction of dams on the Sacramento and San Joaquin rivers (Figures 4-5F and 4-6F). The reason is that the dams are operated to keep flows at the bankfull level and to keep them from spilling onto the floodplain.”

This is a great observation of how the hydrology has been changed due to intentional flood operations that have a negative geomorphic and ecological effect.

G\_AR1-95 Chapter 3's emphasis on bankfull and floodplain inundation is great, but Chapter 4's reliance on IHA is as off track and inconsistent as the descriptions of bankfull and floodplain inundation flows described in Chapter 3. IHA provides numerous statistics which are easy for a consulting firm to calculate and graph, but they are of limited value and even misleading in the absence of a good conceptual understanding of both the processes and the specific river conditions, including the unique hydrologic regulation of different reaches and rivers. This chapter is a poor use of the IHA. That said, some of these graphs, particularly figures 4.1-4.3 would be good in Chapter 2.

The first problem is the assumption that Bend Bridge or Friant are broadly representative of the rivers in the study area. IHA results at Friant are very different from IHA on the Tuolumne at LeGrange or on the mainstem at Vernalis, and IHA at Friant over the next 50 years under the restoration settlement will be much different than the last 50 years. Similarly, Bend Bridge is upstream of the major diversions, which exaggerates summer base flow.

G\_AR1-96 Many of the figures are poorly labeled. Figure 4.4 appears to be both median and average monthly spring flows, not just median. The legend on figure 4.6 is mislabeled (includes reference to pre-Shasta and pre-Trinity which are irrelevant to the San Joaquin). The format of the graph layout is relatively hard to follow. For example, the top is labeled “mean annual discharge,” which has one very specific hydrologic meaning but is used here to refer to a different thing – mean annual discharge of the bankfull

flood. It is not clear what the base flow (figures 4-7 & 4-8) is, but base flows at Friant are less than half the 500 cfs depicted in figure 4-8.

G\_AR1-97 Changes in the mean annual discharge of bankfull flow is a useless metric as illustrated on the San Joaquin. The present Q1.5 at Friant is two orders of magnitude smaller than the historical, but figure 4.6 makes the post-dam bankfull look bigger. This is just an artifact of misusing the IHA. The real story is that the natural bankfull rarely occurs with post-dam hydrology.

G\_AR1-98 The floodplain inundation flow and the “small floods” parameter in IHA are two very different things. Floodplain inundation happens on the lower San Joaquin and lower Sacramento at flows well below the average of the IHA small floods, which therefore is a really bad metric for actual floodplain inundation.

**Section 4.1.2.** The area of floodplain reworked or length of channel are good long-term metrics, but they may not be good metrics for guiding shorter term management decisions. This metric should be augmented by one or more easier to measure, shorter term geomorphic metrics such as length of armored bank or number of bed mobilizing events (scour chains), length of active eroding bank, length and area of ownership consistent with letting the river move free of human conflict, or increases in channel invert elevation.

The metric for levee revetment stressor (4.2.1) looks good, but wouldn't it also make sense to use the more straightforward, easier to measure, and easier to modify metric of length of armored channel?

G\_AR1-99 **Section 4.1.3 Riparian and Riverine Habitats** This section provides metrics that can be used to assess the status and trends of riparian and riverine habitats. It identifies two metrics, (1) the distribution and extent of perennial wetlands, seasonal wetlands, and riparian woodlands, and (2) the distribution and abundance of the following species: valley elderberry longhorn beetle, bank swallow, yellow-billed cuckoo, yellow-breasted chat, riparian brush rabbit, riparian woodrat, least Bell's vireo, and Chinook salmon.

It is great to see wildlife populations and habitat being considered in the plan. Unfortunately, as currently written, there is still much work to do. Overall, this section is vague and incomplete.

- It addresses only 2 metrics – habitat distribution and extent and species distributions abundances. Increasing distribution and abundance is a good long-term objective for the plan, but distribution and abundance may not be a good short-term metric for measuring whether the flood plan is actually advancing the objective. As discussed above, the plan must first state SMART objectives before identifying metrics.
- The section is a general description of current conditions, but the data and maps are out of date (1997 Landsat), and accuracy is questionable. For example, the Cosumnes River Preserve has no mapped riparian vegetation. It is all mapped as wetland.

- The report does not use existing data. For example, it omits several key data for Bank swallow and Yellow-breasted chat occurrences.

G\_AR1-100 Below are a few of the most critical problems that should be addressed:

**Distribution and extent of habitat.** The Status and Trends report presents information on freshwater perennial wetland, freshwater seasonal wetland, and riparian. These three habitat types are very similar to the three habitats (seasonal wetland, semi-permanent wetland, and riparian) that were identified in the 2006 Central Valley Joint Venture Implementation Plan. Thus, there is an opportunity to compare the numbers reported in the Status and Trends appendix to those in the CVJV Implementation Plan (Table 3-1, page 28). Unfortunately, the Status and Trends report does not contain a table that describes the number of acres of each habitat type, thus it is impossible to quantitatively compare the estimates of habitat acreages to acreages that have been presented in other reports. Providing a table that reports the acreages of each habitat, ideally broken down by the basins that were used in the CVJV Implementation Plan, would increase the transparency and utility of this information.

G\_AR1-101

**Selected Species.** The section states that these nine species were selected that “are highly dependent on riparian habitats in the Sacramento and San Joaquin valleys for foraging, breeding, or other important life history requirements. They also were selected because each is considered to be rare, threatened, or endangered by State or federal resource agencies.” This suite of species seems limited for the following reasons:

First, it would seem natural that the species would match with the three habitats that were quantified (seasonal wetlands, perennial wetlands, and riparian). Instead, these are all riparian species. This ignores birds or other organisms associated with seasonal and perennial wetlands. One could easily include some of the wintering and breeding shorebirds, waterfowl, and waterbirds that were included in the Central Valley Joint Venture Implementation Plan to represent these wetland habitats.

Second, if these species were selected to serve as metrics of success, there may be real limitations to focusing on rare and threatened species. Many of these species are already so rare that even if substantial amounts of habitat were created, there may be little or no response. Thus, restoration that has an extremely positive outcome for the larger ecosystem condition may fail to register as successful when measured by the response of these extremely rare species. The plan should address this by including some of the more common riparian focal species (e.g., Black-headed Grosbeak and Spotted Towhee) that were included as conservation targets in the CVJV Implementation plan.

G\_AR1-102

**Quantifying the current status of species.** Section 4.1.3 begins with the statement that “Species abundance would ideally be presented as counts of representative species, but those data are not available.” The section then presents information on distribution of species that was generated primarily from CNDDDB (California Natural Diversity Data Base). Unfortunately, the CNDDDB is far

from up to date, and the report fails to include many sources of useful information for these species. In fact, in some cases counts of representative species are very much available and we strongly recommend that you use them. Below are examples of where better quantitative information is available:

**Bank Swallow.** The Bank Swallow is listed in Table 4-2 as occurring “throughout lowland California.” While this is technically true, it omits the fact that most of the breeding population nests in colonies in the banks of the Sacramento River. Furthermore, the degree to which there were ever large colonies on the San Joaquin is not known, thus the utility of this species as an indicator of success in the San Joaquin should be carefully considered. The California Department of Fish and Game and the California Department of Water Resources conduct annual surveys of these colonies. Thus, there is a good long-term data set describing the decline of Bank Swallows on the Sacramento River. Unfortunately these data were not included or referenced.

These data were recently summarized by Garcia et al. (2008). More recently, DWR has also conducted surveys on the Feather River that may be relevant to this document. All of these data could be obtained by contacting the Bank Swallow Technical Advisory Committee (<http://www.sacramentoriver.org/bankswallow/>).

Garcia, D., R. Schlorff, and J. Silveira. 2008. Bank Swallows on the Sacramento River, a 10-year Update on Populations and Conservation Status. Central Valley Bird Club Bulletin 11:1-12. (available on-line: [http://www.sacramentoriver.org/bankswallow/files/CVBC\\_2008\\_Garcia-et%20al.pdf](http://www.sacramentoriver.org/bankswallow/files/CVBC_2008_Garcia-et%20al.pdf))

**Least Bell’s Vireo.** The report states that “Least Bell’s vireo is known from many locations in Southern California but only one location in the Sacramento and San Joaquin valleys.” A more detailed account of Least Bell’s Vireo was recently published (Howell et al. 2010). Furthermore, the extreme rarity of this species makes it unlikely that it will provide a good metric of success for the actions of the flood plan.

Howell, C. A. J. K. Wood, M. D. Dettling, K. Griggs, C. C. Otte, L. Lina, T. Gardali. 2010. Least Bell’s Vireo breeding records in the Central Valley following decades of extirpation. Western North American Naturalist 70:105-113. (available on-line: [http://www.prbo.org/refs/files/11997\\_ChristineA.Howell2010.pdf](http://www.prbo.org/refs/files/11997_ChristineA.Howell2010.pdf))

**Yellow-billed Cuckoo.** The report states, “There are no recorded occurrences of yellow-billed cuckoo in the CNDDB.” Instead of relying on CNDDB, the plan should refer to a recent report from PRBO Conservation Science to the California Department of Fish and Game that describes a significant effort to survey the Sacramento River for Yellow-billed Cuckoos and provides an estimate of the current population size (Dettling and Howell 2011).

M. D. Dettling and C.A. Howell. 2011. Status of the Yellow-billed Cuckoo along the Sacramento River in 2010. Report to California Department of Fish and Game. PRBO Conservation Science

Contribution #1794. (available on-line:  
<http://www.nrm.dfg.ca.gov/FileHandler.ashx?DocumentVersionID=55330> )

G\_AR1-103 **Chapter 5: Recommendations Section**

Section 5.1 (Data Gaps) reads like the consultant full employment act. Some of the recommendations may be warranted, but nearly all of them are too vague. For now, it makes sense to remove and reconsider all recommendations until the metrics section is revised to be consistent with objectives and Chapter 3. At that point, recommendations should focus additional efforts on gathering the baseline data necessary to track metrics over time.

G\_AR1-104

**Section 5.2.** It is unfortunate that conceptual models were not better developed during the planning process. If conceptual models are developed, DWR should contract with the Delta Science program to develop conceptual models linked and integrated with the DREIP models. They should build off the DRERIP Riparian, Salmonid, and Floodplain models instead of starting from scratch.

G\_AR1-105 **Additional Suggested Content for Chapter 2: Status and Trends Report**

The following text provides the type of content that should be included in Chapter 2 in order to better describe the linkages between hydrologic and geomorphic processes with ecosystem responses for each basin.

San Joaquin

San Joaquin is a higher elevation system with a combination of both snowmelt and periodic rain floods. Present day hydrology is characterized by extreme hydrologic alteration due to the absence of any significant unregulated watersheds, large reservoir volume to run-off ratio, and substantial diversion capacity including out of basin diversion from the Friant Kern Canal. The system is so hydrologically altered, particularly on the mainstem San Joaquin, that nearly approximately 60 miles were dry for half a century. To mitigate this extreme diversion of water, Sacramento water from the Delta is imported to the mainstem river via the Delta-Mendota Canal. Provide statistics about reduction in median flows, particularly median spring flows at Vernalis.

Gravel bedded reaches: Dramatic reductions in peak flows have substantially reduced stream power and eliminated most geomorphic processes such as bed mobilization and floodplain inundation except in the wettest years. The Q1.5 has been reduced by one to two orders of magnitude. As a result, the system is mostly ossified and not really alluvial anymore. Dams block nearly all coarse sediment contribution. On top of this, massive gravel mining has converted large reaches into gravel ponds, creating a shift from an alluvial riverine reach to predator rich, lacustrine habitat. Recent restoration projects, particularly on the Tuolumne and Merced have mitigated some of this traumatic perturbation.

Mainstem geomorphic reaches consists of three distinct reaches: (1) Mendota to Merced; (2) Merced to Vernalis; and (3) Vernalis to Delta. The first reach is characterized by anastomosing (not anabranching) channels that were relatively stable and independent. This reach has historically been characterized by artesian springs and vast floodplains of tule marsh. Today, these multiple channels have been radically altered and mostly bypassed by natural flows through the Chowchilla and Eastside bypasses. Large areas have been converted to agriculture and managed wetlands, both of which are hydrologically disconnected from the river. This reach is characterized by much degraded water quality that also degrades downstream reaches. The reach was once habitat for native resident fishes like hitch, blackfish, and splittail. These fish are still found but the reach is now dominated by exotic fish.

The diversity of fish species has been highly altered. Show famous Moyle table on changes in species composition.

The Delta reach has been highly altered by habitat loss, levees, and hydrodynamic impacts of the water project. Lack of natural turbidity (due to hydrologic alteration), flows, and cool water combined with agricultural run-off make young salmonids very vulnerable to predation and other forms of mortality.

The large majority of juvenile salmon migrate, or were washed downstream, in late winter as fry (Demko) and only about 20% rear in gravel bedded reaches. Massive loss of floodplain habitat due to levees, bypasses, and flow alteration, combined with extremely harmful hydrologic conditions in the Delta, make it very difficult for young salmon to rear in the lower river. Thus, the only successful lifecycle strategy is to rear in the natal spawning reaches until smolt size and then brave the warm temperatures through the lower river in late spring.

Due to the snowmelt run-off, the San Joaquin once supported large spring-run populations on mainstem and all four tributaries, but this run has been extirpated by dams that block access to habitat. Restoration efforts aim to restore spring-run to mainstem below Friant dam where cold water releases will allow fish to incubate eggs and support juvenile rearing over summer. Runs of fall-run have persisted on the tributaries but have been greatly diminished by lack of habitat due to loss of geomorphic process and gravel mining, flow alteration, exotic bass in gravel pits, lack of floodplain rearing habitat due to reduced flows, and most importantly entrainment due to hydrodynamics.

### Sacramento

Sacramento has more of a rainfall system with peak flows in late winter and early spring. Hydrology has been highly altered but far less altered than San Joaquin. It has relatively more areas of unregulated run-off. The volume of reservoirs to average annual yield is considerably smaller. Peak flows have been substantially reduced but Q1.5 is generally half natural rather than an order of magnitude less.

Although there are substantial diversions (GCID, ACID, Riparian users) in the Sacramento Valley, most water captured in reservoirs is released to the river and transported to the Delta via the natural channel. The main hydrologic change is significantly lower winter and spring flows and higher summer flows.

The Sacramento, particularly its tributaries (Bear, Feather, and Yuba), has been heavily impacted by hydraulic mining, which raised bed elevation by several feet or more. Due to some high flows, there are still geomorphic processes, particularly in the meander belt of the Sacramento River, but these are inhibited by bank revetment. These gravel bedded reaches are some of the best remaining fall-run habitat in the system.

Dams blocked access to upper watershed, but cold water releases provided limited habitat for winter and spring run below dams. Winter-run populations are extremely limited and vulnerable.

Undammed Coast Range tributaries (particularly Cottonwood and Thomes) provide a very important source of coarse sediment contributing to geomorphic dynamism of the Sacramento mainstem.



The Colusa to Verona reach is extremely constrained by narrow levees. Most flood flows are transported through flood bypasses (Butte, Sutter, and Yolo) and there is virtually no geomorphic dynamism. It is an extremely degraded habitat.

Levees throughout, but particularly downstream of, the meander belt and gravel bedded reaches have significantly reduced the area and frequency of important floodplain habitat for salmonids.

Bypasses, particularly Yolo, provide opportunity for rearing habitat for salmonids. Juvenile salmon grow three times as fast on the Yolo as they do in the mainstem river.

G\_AR1-106 **Attachment 9C: Fish Passage Assessment**

**Chapters 1-4: Intro, Floodplains and Fish**

- One important aspect missing from this section describing the benefits of floodplains for fish is the importance of floodplains in providing habitat diversity. In turn, habitat diversity promotes life history diversity. Said another way, *floodplains supply the physical habitat needed to manifest complex life histories*. The Central Valley lacks habitat diversity, resulting in simplified life histories that are vulnerable to stochastic events, changed ocean conditions, low water years and other variables. More diverse life histories are better able to buffer against stochastic events.

- G\_AR1-107
- We agree with the focus on anadromous salmonids and Green sturgeon but suggest reviewing the benefits of floodplains to other fish species in addition to anadromous fish in these introductory chapters. Delta smelt and splittail should be given some mention with descriptions of the critical importance of floodplain habitat to specific life stages.

- G\_AR1-108
- In Section 2.2.1 regarding the San Joaquin River Restoration Program, the project description leaves out that the state of California, primarily through the Departments of Water Resources and Fish and Game, are full partners in the implementation of the Settlement Agreement. The restoration program represents a unique opportunity to improve fisheries along the entire San Joaquin River.

G\_AR1-109 **Chapters 5-6: Reasons for decline and climate change**

- How much focus should be placed on the “other” reasons for decline of Central Valley salmonids in a document focused on fish passage and floodplains? We don’t have the answer for that, but we do caution that broaching such a large issue has the potential to detract from the treatment given to the central theme of this document, *stranding and barriers*. For instance, conspicuous by its absence in the list on page 5-3 is the impact of hatcheries on the decline of salmon and steelhead runs in the Central Valley. If this list of other reasons is to be included a thorough

discussion of hatchery effects, especially on fall-run where they have played a large role in population swings observed in recent years, will have to also be included. An overarching section on hatchery effects might help set up further discussion of habitat related impacts on anadromous fish. It is useful context to clarify that the majority of salmonids experiencing the good and bad of what the Central Valley has to offer are of hatchery genetic stock.

G\_AR1-110 **Chapters 7-8: Prioritization of barriers and review of passage technology**

- The discussion on stranding can be expanded to identify stranding issues for juveniles and adults separately. Further discussion on different types of stranding would be useful. For instance, gravel pits and depressions compared to lack of inclination causing stranding compared to identifying return pathways out of floodplains to the mainstem.

- G\_AR1-111
- Section 7.1 states that NOAA requires passage at all barriers. It should also state that California law makes it illegal to construct or maintain a fish passage barrier except in certain limited circumstances. Cite: Fish and Game Code section 5901, and see sections 5931-5936. It should also state that DFG is mandated to develop plans for fishways and to order dam owners to construct the fishways for those structures that create barriers to passage (FGC sec 5931).

- G\_AR1-112
- Throughout the document, the requirements from the OCAP Biological Opinion (BiOp) are downplayed in a way that makes it misleading even if it is perhaps technically true. The document refers to timelines and requirements for permanent passage solutions (2020) but it should also refer to the timelines and requirements for a pilot reintroduction program, which is to operate from 2012-2015 at Shasta for winter and spring run Chinook and at Folsom for steelhead. Cite: OCAP Biop RPA Action V (starts at p.659 of the biop). That would be more informative, and it would have the effect of adding to the list of the short term actions. The language also makes the Biop's requirements seem more tentative in some places than they really are.

- G\_AR1-113
- Sections of the upper San Joaquin River above the Merced River confluence have severely diminished flow capacity below DWR's flood management designs. The diminished flow capacity is the result of poor levee conditions, lack of levee maintenance and the potential for seepage impacts to neighboring lands. The reduced channel capacity impedes the ability to release flows in sufficient volume to allow fish passage. The state of California is responsible for maintaining channel capacity along this stretch of the river. Given the state's commitment (via an MOU) to support the restoration program and the time-sensitive and critical importance of fish passage to support the restoration program, these reaches of the San Joaquin River need to be among the highest priority areas for action. A possible short term and temporary solution to this fish passage issue is the use of the Chowchilla Bypass to route flows and fish around reaches of the river with diminished capacity. This issue should be discussed in this section in coordination with DWR staff working on the SJR Restoration Program.

G\_AR1-114 **Chapter 9: Recommendations, Passage and Habitat Improvement**

- We suggest further discussions with the NOAA Recovery Team before going final with recommendations based on the draft CV recovery plan. For instance, it's quite possible that the Merced River will rise in status. It would also be beneficial to check on the NOAA timeline for passage projects on Shasta Dam and Yuba.

G\_AR1-115

- Restoration of floodplain habitat could be addressed much more specifically in this document as a whole. Levees are identified as barriers to passage, but the potential of floodplain restoration, is not specifically addressed nor are opportunities for restoration of river floodplain connectivity assessed and prioritized as a component of evaluating barriers to passage, nor their potential habitat restoration benefits quantified.

G\_AR1-116

- Can the 'Improve Fisheries Habitat' section refer to the Restoration Opportunity Analysis document? In general, is there potential to reach across the various chapters to consolidate specific restoration opportunities? For example, the ROA document focuses on inundation benefits to fish, and the Fish Passage document highlights benefits of fish passage projects. One document that identifies benefits to fish across strategies would be helpful.

G\_AR1-117

**Attachment 9D: Improving Vegetation Data**

**Comments on Vegetation Maps**

The vegetation maps should be referenced, if not integrated, into the Status and Trends report. At a minimum, the Status and Trends report should provide a summary table that quantifies the areas of the five main cover types mapped in the vegetation maps. It is our understanding that the following table is accurate and, if so, provides valuable information regarding status and trends.

	<b>Riparian Group</b>	<b>Acres</b>	<b>Percent</b>
CFG	California Native Forb/Grassland	132,779	25%
NRW	Naturalized Riparian Wetlands	127,218	24%
CAI	Annual Introduced Grassland	116,370	22%
RWF	Riparian Woodland Forest	87,920	17%
FEM	Freshwater Emergent Marsh	16,326	3%

A discussion regarding how the vegetation map could be used for flood conveyance planning would be useful. For example, the maps could be used to estimate hydraulic roughness and vegetation and its

importance in planning and design. One or more metrics associated with flood conveyance, vegetative cover, and roughness could allow flood and conservation planners to work together to identify locations where vegetation could be modified to better achieve conservation objectives.

The vegetation map would also be useful for tracking land cover and land use over time, particularly with regard to invasive species.

G\_AR1-118 **2.0 Background and need for high quality Vegetation Data**

- First paragraph – Add sentence: Vegetation maps are important in flood planning and management as they can identify areas of flood management benefits resulting from vegetation. (The maps are a first-cut at estimating hydraulic roughness of vegetation in the floodway.)

- G\_AR1-119
- Second paragraph – Add clause: ...Flood flow conveyance, identifying areas (reaches) where hydraulic roughness caused by vegetation will be significant (dense forests) or not (grasslands and marshes).

G\_AR1-120 **6.0 Fine-scale mapping**

- Second paragraph – The fine-scaled maps can be used to estimate manning's n (hydraulic roughness) for any reach of the river. This is actually far more accurate than modelers guessing at roughness values from the desktop or a photograph.
- Fine-scaled maps can monitor, or track, changes through time in vegetation structure (brush to trees, clearing of vegetation) and species composition (invasive species distribution and spread).

Figure 6-1 - These maps exemplify what is wrong with GIS as a communication tool: too many shades of the same color and therefore poor, or no, communication of information. The solution is to place a different digit in each color polygon.

G\_AR1-121 **Attachment 9E: Existing Conservation Objectives and Other Plans**

See Section 2.3.2, 11

G\_AR1-122 **Attachment 9F: Floodplain Restoration Opportunity Analysis**

**General Comments Regarding the Restoration Opportunities Analysis Document**

This document provides general comments regarding Attachment 6 of the Conservation Framework: Restoration Opportunity Analysis as well as some specific comments regarding conditions along the mainstem reaches of the Sacramento and San Joaquin Rivers. Many of these comments apply to the

overall planning approach rather than the technical details of the modeling analysis described in the ROA appendix. We will provide additional comments on the technical details of the analysis in the future.

**1. The goal of the ROA analysis is not explicitly stated or clear.** There are two distinct questions:

- a. What is the purpose of the analyses described in Appendix 6?** Presumably it is to identify areas with high potential for “flood plain inundation,” but the report never explicitly states this. The report provides some very useful analysis and results regarding flood plain inundation potential that will greatly facilitate floodplain restoration planning in the future. There are, however, some significant limitations which we discuss further below. In addition to evaluating floodplain inundation potential, the specific analysis could and should explicitly address other study objectives including:
- i. Identifying key constraints to floodplain inundation (i.e. altered hydrology and channel incision).
  - ii. Developing a methodology to better quantify the ecological benefits of floodplain inundation.
  - iii. Quantify and map the existing area of functional (inundated) floodplain habitat in the Central Valley.
  - iv. Quantify the potential for creating inundated floodplain habitat within the levee system (connected) and outside (disconnected).

A clearer description of planning objectives will better help the reader understand the purpose and results of the analysis. The study provides useful information regarding the potential for floodplain inundation *with existing hydrology*. It also helps highlight key constraints and outlines an approach that could be further developed to map and quantify functional floodplain habitat. Due to a number of limitations discussed below, however, it does not quantify or map the existing or future extent of potential, functional floodplain habitat.

- b. What should be the purpose of a “restoration opportunities analysis” report and what analysis would serve this purpose?** The purpose of a report titled Restoration Opportunity Analysis should be to more broadly identify and prioritize restoration opportunities within the context of the CVFMP. Floodplain inundation potential, while important, is only one of several restoration opportunities. Floodplain inundation through levee setbacks should be placed in the context of other ecosystem restoration opportunities. These other opportunities are discussed further below and should be addressed in a new report on Restoration Opportunities and Constraints.

**2. The report should be renamed “Floodplain Inundation Analysis” and a new report should be developed called the “Restoration Opportunities and Constraints Analysis.”** The floodplain inundation analysis is a very useful product that could be refined to explicitly address the

G\_AR1-123

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objectives in 1a above. A new Opportunities and Constraints Report need not require developing new analysis or significant new text. It could largely be assembled by reorganizing existing text and analysis from the Environmental Stewardship workgroup report, the ROA, the Status and Trends appendix, the fish passage appendix, and the Conservation Framework.

The new report should clearly articulate problems and opportunities. A clear problem statement is a prerequisite of clear goals. A clear statement of the problem(s) can highlight opportunities, since one person's problems are often somebody else's opportunities. Chapter 3 of the CVFMP Regional Conditions Report is an excellent statement of problems and opportunities for the flood management system and should serve as a model for a Restoration Opportunities and Constraints analysis. Table 4.4 in the Conservation Framework Document is the closest thing to a problem statement for the ecosystem restoration elements. Section 2.1 of the Environmental Stewardship also provides good insight on the problems but focuses more on the cause of the problems instead of the actual problems. The problems vary by reach, but we think the following list provides an accurate statement of the main ecological problems resulting from management of the flood system.

- a.** Simplified and degraded channel habitat: Channel shape is uniform and lacks connectivity with floodplains and secondary channels. High velocity flows during floods limit refugia.
  - i. Reservoir operations limit frequency of geomorphically effective flows that would otherwise rework the channel habitat.
  - ii. Bank revetment and levees prevent channel migration and geomorphic processes from reestablishing natural channel form
  - iii. Intentional removal of vegetation and large woody debris that create complexity in their own right and provide a catalyst for hydro-geomorphic processes that create channel habitat complexity.
- b.** Lack of floodplain connectivity, inundated floodplain and secondary channel habitat in winter and spring, but particularly in spring.
  - i. Levees that intentionally disconnect channel and floodplain habitats.
  - ii. Channel incision due to historical dredging, training from levees, bank revetment, and in some cases vegetation encroachment due to flow alteration.
  - iii. Altered hydrology from flood control and water supply reservoirs.
  - iv. Reservoir flood control rules that limit release of bankfull flows.
- c.** Invasive species, particularly in the riparian area.
  - i. Levee and floodway vegetation maintenance practices including intentional introduction of some invasives for "bank stabilization."
  - ii. Altered hydrologic regime.
- d.** Water Quality
  - i. Lack of floodplain and secondary channel habitat to cycle nutrients and recharge hyporheic zone. Hyporheic flow provides important water temperature benefits during critical shoulder seasons.

- ii. Discharge of pollutants from artificially drained land in the systemwide planning area.

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**3. The Restoration Opportunity and Constraints Analysis should identify and prioritize three types of restoration opportunities:**

- a. Low Hanging Fruit
- b. Ecological Hot Spots
- c. Integration with Flood Risk reduction and other major programs.

Restoration opportunity analysis should both prioritize opportunities for floodplain restoration in its own right and opportunities for floodplain restoration as part of the larger effort to reduce flood risk (set backs, flood bypasses, etc). To do the latter, DWR's division of flood management needs to identify flood management priorities. If conservation is really one of the goals of the overall flood plan, then flood management actions must be designed to provide ecosystem benefit along with flood risk reduction.

One obvious strategy for doing so is expanding floodway capacity near areas of high risk through setbacks and flood bypasses. If expansion of floodway capacity through levee setbacks and bypasses is a key part of DWR's strategy, then they must identify priority areas for expanding capacity. If setbacks and bypasses are not part of DWR's flood management strategy, how exactly do they propose to reduce flood risk while also advancing the ecological objectives of the flood program?

There are three general categories of restoration opportunities that the ROA should consider:

- i. Low hanging fruit (parties agree, funding possible, not institutional): Low hanging fruit are ideas that are technically and politically well developed with the promise of demonstrating early success. A few ideas which meet these criteria, but are not prominently featured in the ROA or the Conservation Framework are:
  - a. Notching Fremont Weir to increase the frequency of inundation.
  - b. Breaching levees on the San Joaquin National Wildlife Refuge to increase floodplain connectivity and to allow for a more natural pattern of flooding and draining.
  - c. Reconfiguring topography on the Feather River setback to increase the frequency and area of inundation.
  - d. Implementing McCormack Williamson Project.
- ii. Ecological hot spots:
  - a. Confluences of tributaries with mainstem rivers.
    - i. Remove or setback levees on Deer Creek.
  - b. Increase frequency of side channel inundation on the upper Sacramento River for winter and spring run salmon.

- iii. Opportunities for integrating restoration into flood risk reduction efforts or other major programs such as the San Joaquin River Restoration Program or the BDCP.
  - a. South Delta flood bypass
  - b. Expand the Yolo Bypass
  - c. Create a new ship channel bypass
  - d. Setback levees in reach 2a and 2b of the San Joaquin River

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- 4. The analysis in the ROA should evaluate a broader range of strategies for creating *inundated floodplain habitat*.** The HAR and FIP methods used in the ROA evaluate the potential for creating inundated floodplain by changing riverside topography (removing levees), but that is only one of four strategies for restoring inundated habitat. Other strategies include:
- a. Changing hydrology: Although this may be outside the charge of the CVFMP, it is likely or possible to happen under a number of other programs. In order to truly measure potential for creating floodplain, the FIP should be flexible enough to evaluate inundation potential with different hydrologies (see technical section for suggestions on how to do this).
  - b. Grading floodplain: Although this is probably not practical on a large scale, it may be possible to strategically lower floodplains.
  - c. Raising the channel invert: This strategy may not be viable in highly constrained reaches, but it may be the best strategy for increasing floodplain habitat and channel form complexity where levees are set back.

The document does not evaluate these other opportunities.

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- 5. The Restoration Opportunity and Constraints Analysis should qualitatively evaluate a broad range of restoration opportunities:** ROA is entirely focused on floodplain inundation. Other restoration opportunities that should be evaluated include:
- a. Better managing habitat and vegetation in existing floodways – particularly to control invasive species and reestablish migration corridors.
  - b. Reestablish meander belt corridors where natural geomorphic processes allow the river to gradually reshape channel and floodplain habitats.
  - c. Fish passage. This is addressed in the fish passage report, but really should fall into the category of a restoration opportunity.
  - d. Reduce impact of polluted water quality discharges from artificially drained areas in the Sacramento-San Joaquin Drainage District, which is an integral part of the Central Valley flood management system and under the jurisdiction of the Central Valley Flood Protection Board. Strategies could include best management practices, treatment wetlands, increased enforcement, etc.

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- 6. Provide more explanation and analysis to distinguish between the types of opportunities created by hydrologically connected and disconnected habitats:** Hydrologically connected floodplain restoration opportunities are far more likely to fall into the “low hanging fruit”



category, while, by definition, hydrologically disconnected areas require major infrastructural changes such as levee setbacks. Chapter 4 (page 2-2) erroneously implies, however, that connected areas could only be revegetated if the floodway is expanded. The maps and tables do not quantify the extent of hydrologically connected areas that are within levee defined floodways where conveyance constraints are more likely to be a problem. Outside of such floodways, there should be less of a barrier to revegetation due to conveyance constraints, but the Conservation Framework should not assume a priori that revegetation of areas within floodways would actually reduce flood conveyance. Within floodways, a combination of revegetation and side channel excavation could increase vegetation and inundation frequency while being flood neutral. Recent analysis (UC Davis) suggests that some patterns of riparian revegetation do not reduce conveyance capacity and could even increase it.

There are many other relatively easy possibilities for restoration in hydrologically connected floodplains. Slight changes in reservoir operations and water control infrastructure could significantly change the frequency of ecologically functional floodplain inundation both in and outside of official floodways. Raising channel invert elevations could also increase floodplain inundation frequency. Although this would probably be more applicable to areas outside of official floodways, it could be accomplished with inflatable weirs in floodways that were operated only during non-critical flood conditions. Within floodways, there may be a plethora of other opportunities for increasing vegetation or roughness in one location while lowering it in another, but the ROA provides no consideration of how much opportunity there is to do this.

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- 7. The Restoration Opportunity Analysis ignores the single biggest opportunity for restoration of ecological processes in the flood system:** There are many potential restoration opportunities in the Central valley, but only a relatively small subset of these opportunities will actually provide a flood risk reduction benefit. Billions of dollars are available to reduce flood risk in the Central Valley. In contrast, there is relatively little money to restore ecosystem processes where there is no clear and tangible benefit for water supply or flood risk reduction. The promotion of integrated water management planning is a basic policy of DWR, but the Conservation Framework does not appear to make any effort to integrate flood risk management into the Conservation Framework or vice versa. If this omission is the result of institutional hurdles within DWR, then the Conservation Framework should identify strategies and policies for overcoming these hurdles and advancing projects that both reduce flood risk and restore ecosystem function.

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The ROC analysis should develop criteria for identifying and prioritizing projects that would provide both flood risk reduction and restore ecosystem function. We suggest the following criteria to prioritize locations for integrated flood risk reduction and ecosystem restoration projects.

- a. Potential floodplain expansion projects that would lower flood stage in reaches with urban development on one or both sides.

- b. Floodplain expansion projects that would increase the conveyance capacity of a constrained reach with urban development on one or both sides.
- c. Undeveloped (or sparsely developed) lands with low-lying topography capable of being inundated by the 5 year recurrence interval flow or less that are located in urbanized reaches or immediately upstream or downstream of urbanized reaches.
- d. Areas that would provide floodplain habitat for the greatest number of anadromous fish runs.

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- 8. Restoration of inundated habitat and other natural processes is essential but not sufficient.** Restoration of inundated habitat will not prevent colonization by invasive species that could render the habitat useless for many native bird species. Intensive management is necessary to encourage native vegetation and discourage exotics. Weedy habitat may be okay for some fish species, but is not sufficient for a variety of sensitive, terrestrial species. The structure and diversity associated with native habitats may ultimately prove better for fish as well.

G\_AR1-132

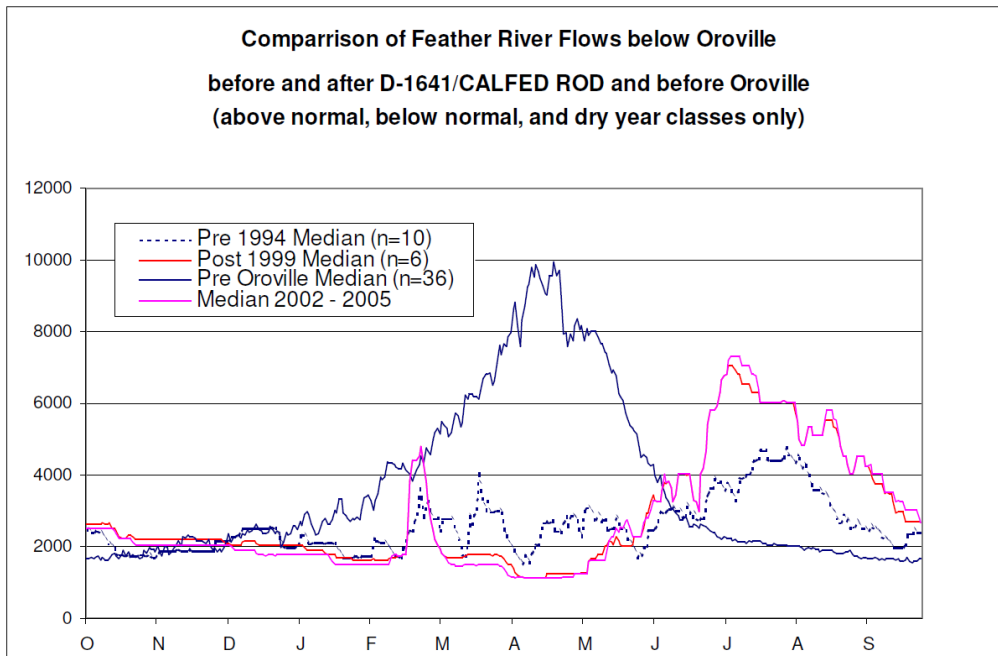
- 9. The Restoration Opportunities and Constraints analysis should highlight key constraints that may be outside the mandate of the CVFMP and identify a strategy for addressing these issues despite the lack of mandate.** Lack of floodplain inundation and functional floodplain due to hydrologic alteration is a critical problem that the Conservation Strategy must address over the long-term, but unfortunately, the flood planning process is not actually empowered to change non-flood flow regimes. Both the Conservation Framework and the Status and Trends report perhaps inappropriately focus on the role of median flows. While changes in median flows may be a good metric of ecological conditions, the CVFMP process and the CVFMB has no authority to change median flows. The ROC should acknowledge this and identify a strategy for addressing this limitation. Part of this strategy should be to quantify and evaluate how floodplain inundation opportunities could change if hydrology changes. See our technical comments below for more ideas on how to do this.

G\_AR1-133

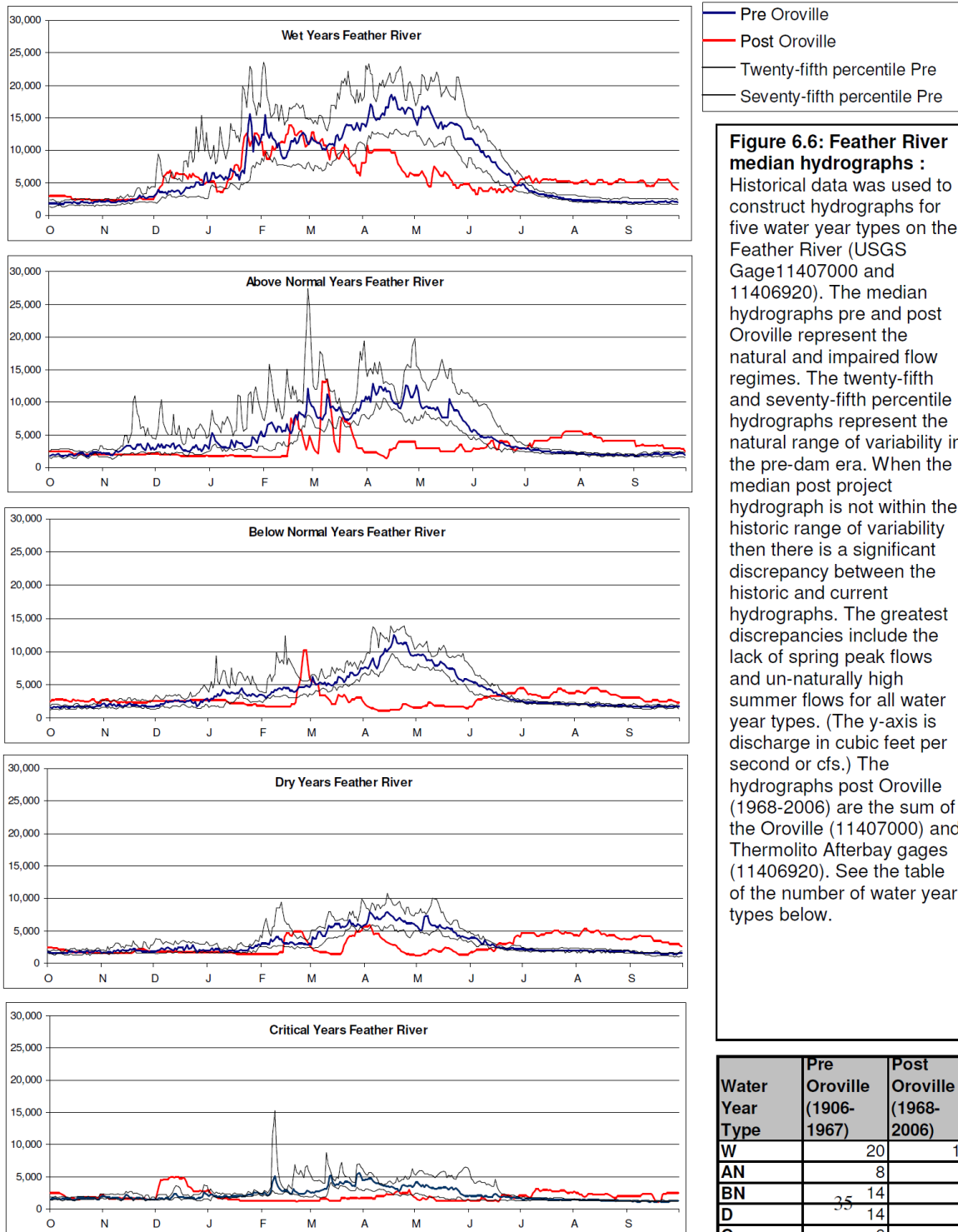
- 10. The ROA (renamed FIP report) should quantify how changes in hydrology could change floodplain inundation potential.** The ROA assumes only one hydrologic data set, but it is clear that hydrology could change significantly on many rivers due to change regulations (FERC, SWRCB, etc.), changed infrastructure and operations (BDCP), and changed climate. The reason that the EFM on the Feather River (67% prolonged spring inflow) shows very little opportunity (and area) for ecologically functional floodplain inundation is because Feather River hydrology has been so altered, not because floodplain elevations are high. The figure below shows that flows below Oroville are now lowest during March and April, when they would provide the most benefit for fisheries, and highest in July and August. Moreover, this pattern appears to have been exacerbated by the water quality control plan regulations in the Delta which make it more difficult to divert water from the Delta during the spring (E/I ratio). Presumably, changes in Delta operations and rules in the future as a result of BDCP could shift this hydrologic pattern once again. The FIP approach should be adjusted to facilitate floodplain inundation potential under a wide variety of potential hydrologic regimes.

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**11. The FIP and EFM approaches should be modified to better quantify the ecological value of various floodplain inundation regimes.** The ROA correctly acknowledges the limitations and challenges of using the EFM to characterize the ecological value of floodplain inundation. The ecological value of any given inundation regime for a particular species depends on the frequency, timing, and duration of inundation events. For example, a seven day inundation event in December may be very beneficial for winter-run juvenile salmon but useless for fall-run that require inundation later in the year – perhaps after March 15. Floodplain inundation after March 15 may be optimum for fall-run salmon, but inundation in late February or early March could still have significant benefit for fall-run. Similarly, while a frequency of 1 in 2 or 1 in 3 years is preferable to a frequency of 1 in 3 years, the lower frequency event could still provide very significant benefits. The EFM analyses’ focus on only one type of inundation event (67% prolonged inundation from March 15 to May 15). It is not surprising that the discharge and stage associated with this event was so low given how altered the natural hydrology is after March 15 (see Figures 1 and 2). These figures indicate that the discharge and stage of a similar frequency/duration event in late February and early March would be much larger and result in a much greater area of inundated habitat.



**Figure 1:** Feather River hydrographs illustrating how the Delta Water Quality Control Plan has influenced the frequency of high flows in March and April.



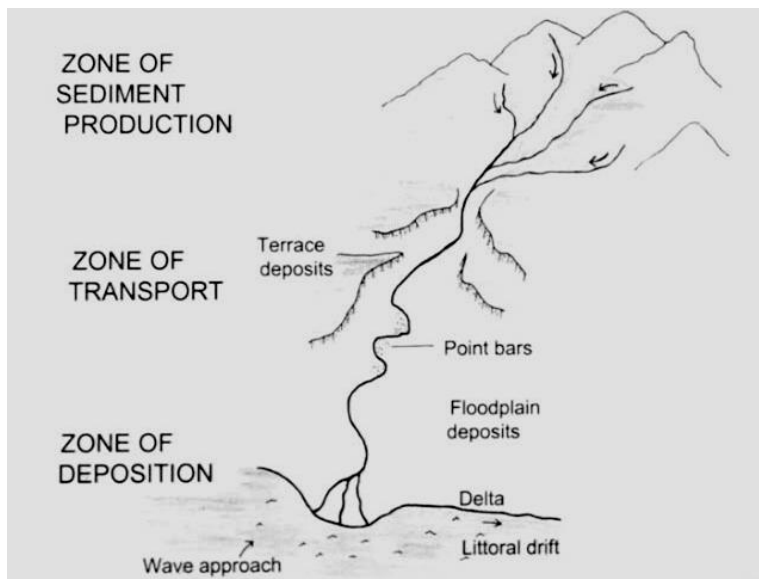
**Figure 2:** Feather River hydrographs that illustrate extreme hydrologic alteration during winter and spring months, but particularly after March 15 in below and above normal years.

G\_AR1-135

**12. Place the FIP analysis in the context of a watershed process conceptual model to better illustrate the expected location of frequently inundated floodplains in the watershed.** The uninitiated reader may form the impression that you started this analysis without any preconceptions or hypotheses about where you would most likely find the greatest potential for inundation. In reality, a simple common sense understanding of the watershed and geomorphic processes would suggest that the low gradient, downstream reaches would offer the greatest inundation potential as illustrated in Figure 3 below – a conceptual model of erosion, transport, and deposition in natural watersheds.

The analysis should more explicitly use the FIP process to test the assumption that most inundated floodplain area will be located in low-lying downstream areas. Further explanation of how this general model should be adjusted to account for local conditions in the Central Valley would illustrate where, besides the most downstream reaches, we would expect to find relatively greater opportunities for inundation. As illustrated in the Bay Institute’s map of wetlands and floodplains, Holocene fans of coastal and Sierra tributaries have created flood basins (Butte, Colusa, Caswell) over a hundred miles upstream from the Delta. Although these basins would appear to be a key opportunity, the analysis only considers a very small area of these total basins (3,500 feet from center line).

Under the general watershed model illustrated in figure 3, it is not surprising that the FIP shows very little frequently inundated floodplain on steeper gradient valley tributaries and the upper Sacramento, but this doesn’t mean that these areas do not have important restoration potential. Although much smaller in area, side channel habitats in steeper gradient tributaries can be very important habitats for riparian vegetation, salmonids, and other species. A study of the upper Sacramento by Kondolf and Stillwater mapped side channels and identified river discharges necessary to inundate them. The model would thus help focus the analysis in the upper reaches on side channels or other opportunities, not large areas of inundated floodplain.



**Figure 3: Geomorphic zones of a watershed: erosion zone, transport zone, and deposition zone.**

G\_AR1-136 **Reach-Specific Comments**

San Joaquin River

- The San Joaquin River Restoration Program has already begun implementing a new flow regime that in the coming years will be significantly greater than what was seen over the last 60 years. It is unclear the extent to which the FIP and other analyses utilized the future flow regime vs the historic flows. If the latter was used, the analysis would greatly underestimate the amount of FIP potential including the frequency. This is particularly true of the reaches of the river below Sack Dam. The analysis needs to be updated if necessary to use the future hydrology. This can be done fairly easily using the transformation hydrograph that is provided in the draft PEIS that is currently public.

G\_AR1-137

- Chowchilla Bifurcation Structure to the Mendota Pool. As noted in this analysis, this section of the river is being restored to increase conveyance capacity and increase floodplain habitats. Currently there are several alternatives that have been developed for varying increases in floodplain habitat. The analysis and the information from these alternatives should be reviewed and incorporated into the ROA report given it is of a higher level of detail.

G\_AR1-138

- Currently, the Chowchilla and Eastside Bypasses convey most of the flood releases down the San Joaquin and overflow from the Kings River. This analysis did not appear to look at the potential to restore floodplain habitats along these reaches. Given that the Eastside Bypass may become the permanent high flow pathway for routing flows released as part of the SJR restoration program, this analysis should incorporate at least this bypass if not all the bypasses along this stretch of the river.

G\_AR1-139 Sacramento River

This section was overly optimistic in its high level assessment of Sacramento River ecological health. Even though the Sacramento is in better condition than other reaches in the Central Valley, the river is not an example of a healthy riparian ecosystem – especially compared to the historical Sacramento River. Please consider the following for a fuller assessment/observation of the conditions on the Sacramento River.

There is very little dynamism in the river processes today. Much of the dynamism that exists (including the beneficial processes associated with it ) occurs only when a full Shasta Dam is forced to release water due to incoming rain storms. This is not the optimal situation for either flood or reservoir managers.

- Section 3.1.1 Woodson Bridge to Chico Landing. The first sentence states that the river “actively meanders through the valley floor,” but this is incorrect and misconstrues the river as maintaining a more natural flow regime and healthy ecosystem than is the case. Virtually all meanders have been locked into place by revetment over the past 50 years and it would be an extreme overstatement to consider the channel active. Actively meandering and

complex channels combined with seasonally varied hydrographs are integral to healthy riparian ecosystems as these processes are what determine biological succession.

G\_AR1-140

- At the end of this first paragraph the author states that “oxbow lakes are still present in many locations.” While this is true, there are many, many more that have been filled by humans.

G\_AR1-141

- Section 3.1.2 Chico Landing to Colusa. We have more concerns with this section where again, “...the Sacramento River actively meanders through the valley floor” and the author makes further reference to the active formation of oxbows. As channel cut-offs, avulsions, and oxbows are detrimental for flood management, it has historically been preferred by flood managers to prevent such processes from occurring by hardening banks at critical locations. Therefore it is unlikely any such active geomorphic processes on the Sacramento truly exist.

Line Item Comments are below:

G\_AR1-142 Page 1-1: End of 4th paragraph, 77% chance should be 67% chance.

G\_AR1-143 Page 2-5: How did the agency determine that the LiDAR in March 2008 represented low-water baseflow for all locations across the Central Valley? What gages were examined? One might expect that March flows are not the lowest flows or baseflows to typically occur in the system.

G\_AR1-144 Page 2-6: Under "Hydraulic Data" the models cited are not explained well in terms of source and year as a first introduction to these data sets.

G\_AR1-145 Page 2-7: How were CalSim-derived flows downscaled? Please note briefly.

G\_AR1-146 Page 3-2: There is no section 2.2.9 as indicated in the text. The more detailed Appendix A describes the rationale behind the use of 1 foot threshold above the water surface. This "LiDAR FIP <= 1 foot" phrase used in all tables should be explained in the text of this document so that all the Tables are understandable and a reader isn't left wondering what it really means.

G\_AR1-147 Page 3-13: There is no report of 67% chance FIP for Feather River-Bear to Sutter Bypass section. It should be mentioned how little is found in this reach area.

G\_AR1-148 Page 3-57: Tables' Note 1 says data are for the corridor 1mile from each river bank. In the appendix, the buffer is stated to be extending from the river centerline. Please clarify.

G\_AR1-149 Page 3-58: Note 6 says "i.e., modeled as inundated by flood flows under existing conditions." This seems a little bit confusing because it is unclear whether this refers to HEC-RAS hydraulic modeling or the FIP relative elevation method which is not modeling the flow of water, but rather the location of low

elevation pockets in proximity to the channel water surface. Please be clear about the method used to define connected/disconnected inundated area in this note.

G\_AR1-150 **Attachment 9F (A): Floodplain Restoration Opportunity Analysis – Appendix A. Floodplain Inundation and Ecosystem Functions Model Pilot Studies**

Line Item Comments are below:

Page A2-5: What is the resolution of CVFED primary DEMs that are compared to the 10m USGS ones?

G\_AR1-151 Page A2-6: Please cite the source of Figure A-3.

G\_AR1-152 General comment: A relative elevation technique was implemented with the HAR tool. Describe the rationale behind use of kernel density.

G\_AR1-153 Page A2-15: Please summarize in one or two sentences the Appendix D6-D effort or at least state whether the results currently provided account for the differences in adjusted current levee alignments. Specifically, where the CVFED LiDAR data acquisition is described at flows of 660-670 cms: Where does this range come from? What gage or cross-section?

G\_AR1-154 Page A2-16: For paragraphs 2 and 4, where flow is given, what is the location of the gage or cross-section?

G\_AR1-155 Page A2-18: The question about whether the 50% flood actually inundates land between levees is a good one. But 20 feet is a large difference between the LiDAR data flows and the 2-year RI flows. Is this reasonable?

G\_AR1-156 Page A2-20: Nice conclusions, but it would be helpful to point out how FIP does not account for how flows would move outside of the levee extent, so hydraulic modeling will be necessary to assess the area that will be flooded should levees be removed or set back.

G\_AR1-157 Page A3-2: A steady-state model is cited, but then an unsteady state model is used (pg A3-6). Why?

G\_AR1-158 Page A3-2: Also, the synthetic flows are key to this section, but we are referred to a report for details. There should be a short summary of why this hydrograph was selected and how it will affect what EFM will derive. An important justification is on page A3-6, 2nd paragraph under section C.

G\_AR1-159 Page A3-17: Why not report on the areas inundated for these relationships? That's the crux for floodplain potential results.



- G\_AR1-160 Page A3-20 to 21: The modified EFRs and conclusions do not seem to capture an understanding of the biological ramifications of the criteria, such as relevance to life stage. (e.g., the declining rate of change criteria is important to seeding root growth maintaining groundwater contact, so dropping it for 14-day min/max criteria seem to miss the point).
- G\_AR1-161 Page A3-26 and 27: The "findings of this approach" would be better described as "caveats for this approach."
- G\_AR1-162 Page A3-27: HAR does not have an inability to map below the water surface; LiDAR was not integrated with bathymetry. This is a data limitation, not a tool problem.
- G\_AR1-163 Page A3-28: Why was no testing done to see if the assumptions about validity ever hold? Were there any tests done?
- G\_AR1-164 Figures A-24 and A-25 are somewhat confusing in light of the main document's discussion on being connected via the GIS analysis. Potential habitat outside the levees is not connected and if levees are set back, additional analysis is necessary to determine hydraulic connectivity.
- G\_AR1-165 Page A3-33: There are good conclusion points, but a remaining open question regarding this pilot study is what are the quantities of potential new habitat? Areas were never reported for the relationships, and only a couple of maps were presented. From Appendix G, we assume this is because the areas were primarily in channel? Is it the lack of bathymetry integration with the DEM that is apparent in the Appendix G figures?
- G\_AR1-166 Page A3-34: EFR criteria based only on flow would mean dropping the cottonwood rate of change relationship? This is unclear. Also, now steady state modeling is recommended. Why?
- G\_AR1-167 **Appendix B.**  
Figure B-3. What is the date of the data acquisition for this DEM?
- G\_AR1-168 **Attachment 9G: Regional Permitting Options**  
Not Reviewed

G\_AR1-169

## **Attachment 1: Examples of Multiple-Objective Flood Management Projects**

Sacramento River - Hamilton City Flood Damage Reduction and Ecosystem Restoration Project: to improve flood protection for Hamilton City and restore 1,400 acres of floodplain habitat. The project demonstrates that flood risk reduction and ecosystem enhancement can be embodied in a flood risk reduction project; in fact, it was the ecosystem component of the project that helped it meet the Corps B/C ratio requirement.

Sacramento River - Kopta Slough/Woodson Bridge Flood Damage Reduction and Habitat Restoration Project: to provide erosion protection for Woodson Bridge, City of Corning sewer outfall, Woodson Bridge State Recreation Area, County Park and County Highway A9. The project demonstrates the benefits of removing unnecessary rock and restoring 175 acres of riparian floodplain habitat on the Kopta Slough Preserve.

Sacramento River – Princeton, Codora, Provident, and Glenn Pumping Plant Protection/Flood Damage Reduction and Habitat Restoration Project: to provide erosion protection for the pumping plant, maintain the flow split into Butte Basin, and restore 450 acres of riparian floodplain habitat on the Sacramento River National Wildlife Refuge. This grassroots project will remove rock revetment from where it is no longer needed to a location that will protect the pumping plant. The resulting enhancement of natural river meander will benefit both the pumping plant and the ecosystem.

Sacramento River – Notch Freemont Weir: to provide upstream and downstream fish passage for salmonids and sturgeon, create 10,000 acres of frequently inundated floodplain habitat for splittail, salmon, waterfowl, and other wildlife species. The design will avoid impacts to flood conveyance and existing waterfowl habitat.

Sacramento River – Expand Yolo Bypass: to reduce the 200-year flood stage in the Sacramento River at I Street by four feet, substantially increase flood protection for Sacramento, and expand potential for habitat restoration in the Yolo Bypass. Habitat restoration in the bypass is currently constrained by limitations on flood capacity, but expansion of the bypass would allow additional habitat roughness features along with continued agricultural production in the bypass.

Sacramento River – Ship Channel Bypass: Create a new bypass (1,000 to 2,000 feet wide) immediately east of the deep water ship channel to substantially reduce flood stage from the confluence with the American River downstream to Walnut Grove, which will provide increased flood protection to multiple communities including Sacramento and West Sacramento, and create 3-5 thousand acres of new riparian and floodplain habitat. It would provide frequently inundated floodplain habitat for salmon runs from Battle Creek, the Feather River system, and the American River system – all of which harbor endangered spring-run salmon that will not have significant access to the Yolo bypass. It would also allow juvenile migratory fish to better avoid entrainment associated with existing and future water supply conveyance features.

Feather River – Lower Feather River Corridor Management Plan: to reduce flood risk, restore 2,500 acres of riparian habitat, lower DWR operation and maintenance expenses, and reduce the time and cost of flood operations and habitat restoration permitting. The project is developing a plan to manage a 20 mile reach of the Lower Feather River – an area where 9 miles of levees have been set back, and 2,200 acres have been reconnected to the floodplain. The project will serve as a prototype of science-based, multi-benefit floodplain management for future levee setback projects.

Cosumnes River – Oneto-Denier Flood Damage Reduction and Habitat Restoration Project: to reduce flood risk for neighboring lands and restore 622 acres of floodplain habitat. The project demonstrates the flood risk reduction benefits of breaching a levee – which will reduce flooding on neighboring lands – and restoring 622 acres of habitat.

McCormack-Williamson Tract – Flood Control and Ecosystem Restoration Improvements: to improve flood management for neighboring Delta lands in a manner that benefits species and restores ecological function. The project demonstrates the benefits of recontouring levees on a 1,600-acre Delta island to improve flood management and restore habitat to improve ecological processes.

Tuolumne River – Dos Rios Flood Damage Reduction and Habitat Restoration Project: to diminish peak flood flows in the Tuolumne and San Joaquin Rivers and restore 1,400 acres of riparian habitat. The project demonstrates the benefits of spilling peak flood flows into a contained flood basin and managing flood flows in a way that reduces pressure on the Hwy 132 Bridge, downstream of the project site, creating a foundation for other floodway improvements.

San Joaquin River – San Joaquin River National Wildlife Refuge/Three Amigos Flood Damage Reduction and Habitat Restoration Project: to decommission 7 miles of project levee and reconnect 3,000 areas of riparian habitat on the San Joaquin River National Wildlife Refuge to natural floodplain process. The project demonstrates the benefits of spilling peak flood flows into a contained flood basin and managing the property in normal flow conditions for environmental and endangered species objectives. The Dos Rios and Three Amigos projects functioning together have the potential to receive 25,000 acres feet of water – from the peak flows of a major event – at the confluence of the Tuolumne and San Joaquin rivers.

San Joaquin River – Reach 2A Setback Levees and Recharge Groundwater Project: to set back the levee, attenuate flood flows, reduce flood risk for Mendota, restore riparian habitat, and allow floodwaters to recharge a depleted aquifer.

San Joaquin River –Reach 2B channel expansion and Mendota Pool Bypass Projects: to collaborate with the San Joaquin River Restoration Program to increase the channel capacity to 4500 cfs, construct levees to modern standards, and increase management flexibility of floodwater from the Upper San Joaquin and the Kings River. Expanding this reach will also result in the creation of floodplain habitats that are essential for the health and recovery of Central Valley salmonids and the Bypass around Mendota Pool and would resolve a very significant fish passage impediment.

San Joaquin River –Reach 4B Channel Expansion and Sand Slough Control Project: to collaborate with the San Joaquin River Restoration Program to increase channel capacity over a 20 mile reach of the river, develop transitory floodplain storage, construct levees to modern standards, and

expand riparian habitat. These projects will not only improve conveyance and increase flexibility in the routing of flood flows but also remove fish passage barriers related to state owned flood control infrastructures.

Lower San Joaquin River Flood Bypass: to lower flood stage in the San Joaquin River at Mossdale by 20 inches, provide increased flood protection for Manteca, Lathrop, and Stockton, and create 2-4 thousand acres of habitat for numerous wildlife species including waterfowl, Swainson's hawk, and the federally endangered riparian brush rabbit.



G\_AR1-170 **Attachment 2: A Six Point Program for Economic Prosperity  
and Flood Management in California's Central Valley**

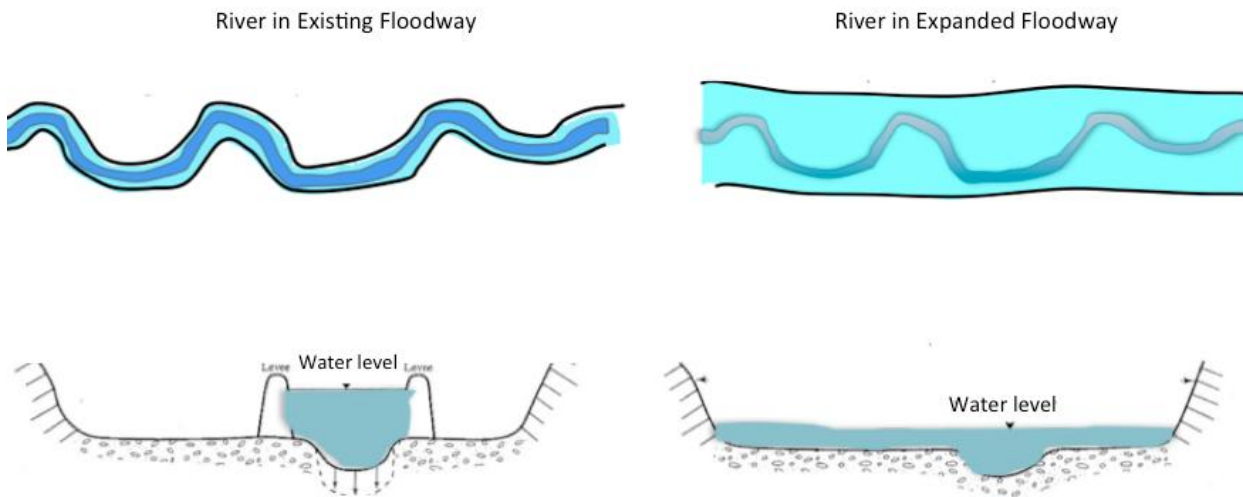
The economic prosperity of all Californians will be determined in part by the success or failure of the Central Valley Flood Management Plan. A failed plan could cost taxpayers billions in implementation and post-disaster recovery. A successful plan will prioritize investments to minimize potential loss of life; formulate policies that integrate and advance flood risk reduction, ecosystem restoration, and water supply objectives; and make spatially explicit decisions for how to change the flood system on the ground so that local jurisdictions can amend land-use plans accordingly. American Rivers, a non-profit organization that protects rivers for communities and wildlife, has proposed a six point program for a successful Central Valley Flood Management Plan:

1. Prioritize future levee investments on improving levee safety for existing urban areas in the Sacramento-San Joaquin Delta region;
2. Initiate a near-term program to expand flood bypasses through the Delta region to increase conveyance capacity through urbanized reaches of the Lower Sacramento and San Joaquin Rivers;
3. Develop a program to compensate rural landowners to develop emergency overflow areas in the Central Valley for the purpose of attenuating very large floods and minimizing the potential for loss of life;
4. Initiate a long-term program to acquire flood easements along constrained river reaches upstream of the Delta region to increase the amount of water that can be safely conveyed from upstream reservoirs to the ocean;
5. Implement a comprehensive program to manage and reduce residual risk in urban areas protected from deep inundation by levees.
6. Reoperate reservoirs to better balance competing needs of flood control on one hand and water supply, hydro-power, fisheries management, and recreation on the other hand.

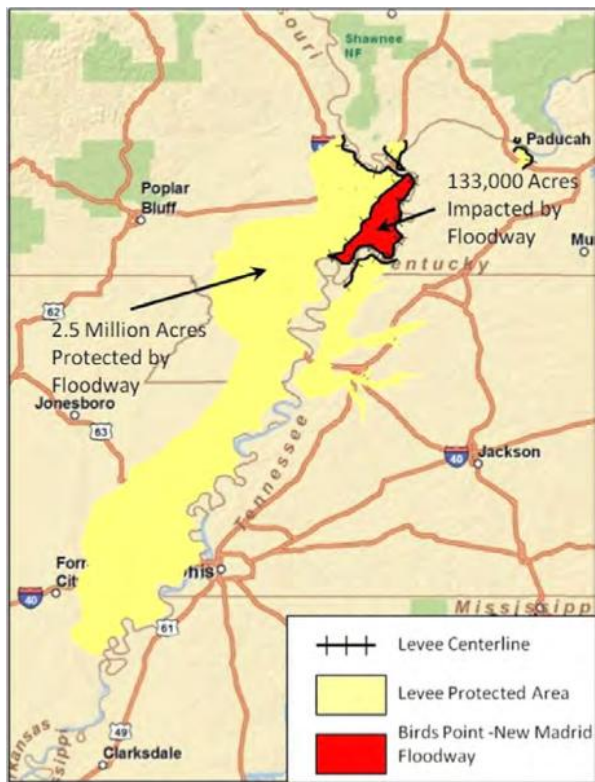
G\_AR1-171 **ATTACHMENT 3: FLOODWAYS AND FLOOD BYPASSES REDUCE RISK AND ENHANCE PUBLIC SAFETY**

Expanding floodways and creating bypasses allows high water to spread out onto a river's floodplain (figure 1). This reduces flood risk by:

- ❖ **Reducing water surface elevations**, which reduces the probability of levee failure by *overtopping*. For example, after a given floodway expansion, the discharge previously associated with a 150-year return period might become a 300-year return period.
- ❖ **Reducing water surface elevations**, which reduces the probability of levee failure due to *geotechnical* failure mechanisms.<sup>1</sup>
- ❖ **Reducing water surface elevations**, which reduces the consequences of flooding because *loss of life* and *flood damage* are a function of *flood depth*.<sup>2</sup>
- ❖ **Reducing water surface elevations**, which reduces the consequences of flooding because waters on a wider floodplain *rise more slowly* than water contained between levees. This increases *warning time* so communities downstream can *safely reach higher ground* and can move valuables *out of harm's way*.
- ❖ **Floodways and bypasses** also reduce the consequences of flooding because they route high, fast moving floodwaters *away* from *urban areas* and *critical infrastructure*, and into less developed lands where damage to human life, highway, water supply, power, or other infrastructure is not as large a concern. In 2011, the New Madrid Floodway<sup>3</sup> routed the Mississippi River into farmland (figure 2), saving over 3000 lives and 2.5 million acres of farmland.
- ❖ **Designating overflow areas** ahead of time reduces consequences of flooding because managers can control the location, timing, depth, and duration of a flood in a specific area (like a prescribed forest fire). Whereas levees left to overtop or *fail on their own*, often do so in an *uncontrolled manner*.



**Figure 1** (above)- Schematic shows higher water level between levees on left, reduced water level on wider floodplain on right.



**Figure 2** (left)- Activating the 133,000-acre New Madrid Floodway (red) prevented the inundation of over 3,000 inhabitants of Cairo, Illinois, as well as 2.5 million acres of farmland (yellow). Together with additional floodways, the Mississippi River and Tributaries Plan has prevented more than \$350 billion in damages since conception in 1928. (MRC 2011)

References:

- 1) Technical Advisory Committee on Water Safety in the Netherlands (TAW) (2012) Technical Report on Soil Structures. Accessible: <http://www.enwinfo.nl/engels/downloads/TRSoilStructures.pdf>
- 2) Jonkman,SN, Maaskant,B, Boyd,E, & ML Levitan (2009). Loss of Life Caused by the Flooding of New Orleans After Hurricane Katrina: Analysis of the Relationship Between Flood Characteristics and Mortality. *Risk Analysis*, Vol 29 (5): 676-698
- 3) Mississippi River Commission (2011). Mississippi River Commission 2011 Flood Report. Accessible: [http://www.mvd.usace.army.mil/mrc/pdf/MRC\\_2011\\_Flood\\_Report.pdf](http://www.mvd.usace.army.mil/mrc/pdf/MRC_2011_Flood_Report.pdf)

**John R. Cain, Conservation Director, American Rivers**

***Response***

DWR appreciates the detailed review that American Rivers has given the DPEIR. American Rivers has provided information that will assist in making subsequent environmental documents clearer and more relevant at the project level. Moreover, DWR appreciates American Rivers' participation in the flood planning process and looks forward to collaboration in the future.

***G\_AR1-01***

The CVFPP is a conceptual planning document, and the economic analyses are preliminary. They will be refined during future regional and basin-level planning processes, and individual project development.

The comments regarding recommended Board actions address the merits of the program. These comments do not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR. The comments are noted.

In regard to comments pertaining to a vision statement, as stated in Master Response 8, multiple comments were received during the public review processes for the draft CVFPP and DPEIR regarding a desire for a vision statement for the CVFPP and/or SSIA. The State Legislature enacted comprehensive flood risk management legislation in 2007, including the Central Valley Flood Protection Act of 2008. This law set a clear directive for an integrated systemwide approach to Central Valley flood management, and provided detailed guidance for DWR to follow in formulating the CVFPP. The Central Valley Flood Protection Act of 2008 specifically requires the CVFPP to provide significant systemwide benefits, evaluate both structural and nonstructural improvements, provide a description of the entire system and its current performance, promote multipurpose projects, and leverage other funding sources. These requirements for the CVFPP are embedded in SB 5 and codified in CWC Sections 9600–9625.

DWR, in coordination with USACE, the Board, and multiple stakeholders, used this legislative direction to formulate the CVFPP's primary and supporting goals listed in Master Response 8.

In accordance with legislative direction and reflecting stakeholder input, DWR prepared the 2012 CVFPP to describe the State's vision for flood management in the Central Valley. This vision for flood management in the



Central Valley is for a sustainable flood management system that provides a high degree of public safety, promotes long-term economic stability, and supports restoration of compatible riverine and floodplain ecosystems.

In the CVFPP, DWR describes the SSIA, which is a proposal for achieving the State's vision for flood management. The SSIA helps achieve the State's vision for flood management in a balanced manner by promoting responsible investment of public funds, commensurate with flood risks, in projects that integrate multiple benefits, in proactive maintenance of SFPC facilities and residual risk management, and in wise management of floodplains protected by the SPFC. For further details, see Master Response 8.

DWR notes that the elements of the vision statement recommended by the commenter, although worded and structured somewhat differently, generally are consistent with those directed by SB 5 and applied in the CVFPP.

Although DWR may consider independent scientific peer review of the science underlying the CVFPP during future processes, this is not anticipated to add to the substantial expertise already being applied by regulatory agencies, the public, DWR's own scientists and engineers, and consultants.

**G\_AR1-02**

See response to comment G\_AR1-01 and Master Response 8, both of which address this comment's focus on vision and goals. The commenter's stated preference that the relative emphasis of ecosystem restoration should be increased is noted.

**G\_AR1-03**

Section 15164(b) of the CEQA Guidelines requires the project description in an EIR to contain a statement of project objectives. More specifically, it states that an EIR is to include "[a] statement of objectives sought by the proposed project. A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the project." There is no requirement that the EIR contain an explanation or clarification related to why other objectives were not included in the project description.

For additional details, see Master Responses 8 and 19.

**G\_AR1-04**

The comment states that the CVFPP needs to have specific, measurable, achievable, relevant to the goal, and time-bound objectives (i.e., SMART objectives), and says that the goals in the CVFPP do not meet these criteria. The comment specifically identifies the goal to improve flood risk management as one that is not measurable. The comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted. However, a response relative to the goals of the CVFPP and how they were developed is provided below.

As stated in Master Response 8, the State Legislature enacted comprehensive flood risk management legislation in 2007, including the Central Valley Flood Protection Act of 2008. This law set a clear directive for an integrated systemwide approach to Central Valley flood management, and provided detailed guidance for DWR to follow in formulating the CVFPP. The Central Valley Flood Protection Act of 2008 specifically requires the CVFPP to provide significant systemwide benefits, evaluate both structural and nonstructural improvements, provide a description of the entire system and its current performance, promote multipurpose projects, and leverage other funding sources. These requirements for the CVFPP are embedded in SB 5 and codified in CWC Sections 9600–9625. DWR, in coordination with USACE, the Board, and multiple stakeholders, used this legislative direction to formulate the CVFPP’s primary and supporting goals. For additional details, see Master Response 8.

As noted above, CWC Sections 9600–9625 provide specific direction for the preparation of the CVFPP. The following text from CWC Section 9616 refers to the objectives to be considered in the CVFPP:

- (a) The plan shall include a description of both structural and nonstructural means for improving the performance and elimination of deficiencies of levees, weirs, bypasses, and facilities, including facilities of the State Plan of Flood Control, and, wherever feasible, meet multiple objectives, including each of the following:
  - (1) Reduce the risk to human life, health, and safety from flooding, including protection of public safety infrastructure.
  - (2) Expand the capacity of the flood protection system in the Sacramento–San Joaquin Valley to either reduce floodflows or convey floodwaters away from urban areas.

- (3) Link the flood protection system with the water supply system.
- (4) Reduce flood risks in currently nonurbanized areas.
- (5) Increase the engagement of local agencies willing to participate in improving flood protection, ensuring a better connection between state flood protection decisions and local land use decisions.
- (6) Improve flood protection for urban areas to the urban level of flood protection.
- (7) Promote natural dynamic hydrologic and geomorphic processes.
- (8) Reduce damage from flooding.
- (9) Increase and improve the quantity, diversity, and connectivity of riparian, wetland, flood plain, and shaded riverine aquatic habitats, including the agricultural and ecological values of these lands.
- (10) Minimize the flood management system operation and maintenance requirements.
- (11) Promote the recovery and stability of native species populations and overall biotic community diversity.
- (12) Identify opportunities and incentives for expanding or increasing use of floodway corridors.
- (13) Provide a feasible, comprehensive, and long-term financing plan for implementing the plan.
- (14) Identify opportunities for reservoir reoperation in conjunction with groundwater flood storage.

In addition, the primary and supporting goals/objectives in the CVFPP were influenced by the results of a considerable effort by DWR in obtaining stakeholder feedback and informing a variety of groups and individuals across the CVFPP planning area.

As stated in Master Response 13, this extensive public engagement process for plan development, which began in January 2009, involved about 450 people representing public agencies, businesses, interest-based

organizations, and members of the public. The process included nearly 300 meetings and more than 40 publications, in addition to development of a public Web site and webinars. A full list of participants and forms of engagement in plan development are available in Attachment 5, “Engagement Record,” in Appendix A, “Central Valley Flood Protection Plan.” The participants in the engagement process assisted DWR in identifying problems, developing CVFPP goals, identifying the range of management actions to consider in the CVFPP, and reviewing and commenting on the draft content of the CVFPP. For additional details, see Master Response 13.

The objectives in the PEIR are adequate for a program-level analysis under CEQA, and the more detailed “SMART” objectives requested by the commenter would not be feasible to develop at this time, particularly because of the substantial uncertainties faced by the program (i.e., funding). Developing more detailed objectives also would be premature because of the anticipated basin and regional planning processes, and associated public participation components.

The goals and objectives included in the CVFPP are consistent with the State Legislature’s direction for preparing the plan. Before the 2017 update to the CVFPP (for the 2017 plan), public and stakeholder feedback will be solicited again, and comments will be accepted on the details of the plan.

**G\_AR1-05**

The 2012 CVFPP describes the State’s vision for a sustainable flood management system in the Central Valley that provides a high degree of public safety, promotes long-term economic stability, and supports restoration of compatible riverine and floodplain ecosystems. CWC Section 9616(a) establishes the statutory objectives of the CVFPP. In the future, as programs and projects are developed and implemented as part of the CVFPP, more specific objectives will be established for those programs and projects, consistent with the more general objectives of the CVFPP.

Flood risk management is reflected in several of the statutory objectives of SB 5, and it is an integral component of DWR’s planning and project-level analyses.

For additional details, see Master Responses 14 and 19.

**G\_AR1-06**

See response to comment G\_AR1-04.

**G\_AR1-07**

As stated in Master Response 6, DWR recognizes the importance of proper maintenance to protect State, local, and federal investments in the flood management system. However, maintenance activities alone do not meet current needs or legislative requirements for the CVFPP (e.g., urban level of protection, systemwide approach, and providing multiple benefits). This is highlighted in the evaluation conducted for the preliminary approach called “Achieve SPFC Design Flow Capacity.”

The Achieve SPFC Design Flow Capacity preliminary approach focuses on reconstructing SPFC facilities to meet current engineering criteria without making major changes to facility footprints or operations. To achieve the design flow capacity, reconstruction is required because the original specifications focused primarily on levee prism geometry, and current evaluations have shown them to be insufficient in passing design flows if geotechnical and other engineering conditions (e.g., underseepage) are not improved. This approach was formulated to address legislation that required DWR to consider structural actions necessary to reconstruct SPFC facilities to their design standard (CWC Section 9614(g)). It also addresses requests from stakeholders to consider reconstructing the existing flood management system in place, or without major modification to facility locations.

Based on an initial assessment, this preliminary approach is estimated to cost approximately \$19 billion to \$23 billion and take 30–35 years to implement. This approach would improve the reliability of SPFC facilities compared to existing conditions. However, in many locations, upstream levee reconstruction would increase peak flows and stages downstream because upstream levee failures would be reduced compared to existing conditions. Further, the level of protection would be highly variable throughout the system and would not be linked to the current public safety needs and legislated requirements, and to assets at risk within the floodplain. Consequently, this approach would only partially address the primary CVFPP goal of improving flood risk management.

Investments in SPFC reconstruction would initially reduce SPFC O&M costs, but long-term costs to maintain the system would remain high. Thus, this approach would only partially contribute to the goal of improving O&M. Opportunities to integrate ecosystem restoration and enhancement would be limited and would not contribute to improved ecosystem functions on a systemwide scale. There would also be few opportunities to promote multipurpose benefits including incorporating new groundwater recharge or other water-related benefits, and promoting ecosystem functions, recreation, or agricultural sustainability. Consequently, an approach focusing on maintenance, repair, and reconstruction of existing

facilities would contribute in only a minor way to the supporting goals of multi-benefit projects.

Improving O&M is a supporting goal of the CVFPP. The SSIA includes elements to address and improve O&M at existing facilities as part of residual risk management. These elements include identifying and repairing after-event erosion, developing and implementing enhanced O&M programs and practices, and forming regional O&M organizations and sustained investments in flood system maintenance (management of the Sacramento River channel and levees, bank protection, and rehabilitation of flood structures).

The SSIA promotes efficient and sustainable long-term O&M practices through the following:

- Reforming and consolidating State and local agencies' roles and responsibilities for O&M
- Standardizing criteria by which maintenance practices, procedures, and inspections are performed and reported
- Implementing strategies to adequately and reliably fund routine activities and streamline permitting

Some of the proposed activities may involve legislative action, new institutional arrangements involving local maintaining agencies, modifications to existing State programs, and additional or redirected funding.

For additional details, see Master Response 6.

The comments regarding recommended Board actions address the merits of the program. These comments do not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR. The comments are noted.

**G\_AR1-08**

See response to comment G\_AR1-04. The CVFPP does advance multiple objectives and has advanced the Conservation Framework as a key component of the CVFPP. The Conservation Framework and Corridor Management Strategy serve to minimize biological impacts and thereby reduce the level of mitigation that otherwise would be required.

**G\_AR1-09**

See responses to comments G\_AR1-04 and G\_ARI-08.

**G\_AR1-10**

The Board and DWR understand and have addressed linkages between the CVFPP and water supply. As stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction for the CVFPP to "...include a description of both structural and nonstructural means for improving the performance and elimination of deficiencies of levees, weirs, bypasses, and facilities, including facilities of the State Plan of Flood Control, and, wherever feasible, meet multiple objectives..." (CWC Section 9616(a)). The legislation further identifies 14 objectives, two of which address water supply and groundwater recharge (CWC Sections 9616(a)(3) and 9616(a)(14)).

The CVFPP includes a high-level discussion on integrating water supply benefits with flood management improvements. The SSIA elements focus on public safety and improvement of flood management, consistent with the legislative direction and CVFPP primary goal; however, implementing these elements could improve water management because expanding floodways and the bypass system could improve the flexibility of reservoir operations and increase in-channel groundwater recharge. The SSIA describes potential opportunities for integrating water supply benefits with proposed flood management actions, but it does not include specific project recommendations related to water supply because of the need for future site-specific proposals and analyses. During post-adoption activities (regional flood management planning and development of basin-wide feasibility studies), additional details will be developed, including specific water management features as part of multi-benefit projects, in collaboration with interested local and regional agencies and organizations.

In addition, the DPEIR evaluates the potential effects of the proposed program on water supply; for example, see Section 3.11, "Groundwater Resources," and Section 3.13, "Hydrology." The impetus for including both the Southern California and coastal CVP and SWP service areas within the PEIR (i.e., as the "SoCal/coastal CVP/SWP service areas") was to ensure that potential effects of the program on water deliveries outside the Extended SPA and Sacramento and San Joaquin Valley watersheds were evaluated in the PEIR.

The PEIR analysis did not find any significant adverse effects on water supply resulting from the proposed program.

DWR believes that the approach of focusing the CVFPP on flood management issues is consistent with the Legislature's intent as expressed in the Central Valley Flood Protection Act of 2008, and that including elements that provide a greater focus on water supply is not necessary. For a more detailed discussion of comments relating to potential future expansions of upstream reservoirs, see Master Response 10.

Capturing and using floodflows for groundwater recharge is a component of integrated flood and water management in the CVFPP. The State supports programs that use floodflows for groundwater recharge to improve water management throughout California. However, the State also recognizes the limitations of direct groundwater recharge in lowering flood stage and reducing flood risks, especially in the Sacramento River Basin. Considering these limitations, the SSIA identifies opportunities for groundwater recharge within the flood management system (in-channel recharge and in expanded bypass areas). Although no specific recharge projects are recommended in the SSIA at this time, the State encourages further exploration of feasible recharge opportunities in the San Joaquin River Basin, in particular, to capture a portion of high flows from snowmelt.

DWR also recognizes that although expanding a floodway can assist in recharging groundwater by expanding the surface area of inundated ground during high-water events, a meaningful benefit cannot be assured. The inundated soils must be appropriate to allow groundwater infiltration. Depending on hydrologic conditions, an expanded floodway may be inundated only rarely, allowing only limited opportunities for increased groundwater infiltration. The local aquifer may be recharged from lands away from the river, with groundwater flowing toward and draining into the river. In this circumstance, increasing floodway inundation would have little benefit to local groundwater recharge. Therefore, potential groundwater recharge benefits from increasing floodplains, flood bypasses, and setback levees are very dependent on site-specific conditions.

The SSIA includes an F-CO Program that seeks to coordinate flood releases from existing reservoirs located on tributaries to major Central Valley rivers. Considering the timing and magnitude of flood releases from reservoirs, the F-CO Program seeks to optimize the use of downstream channel capacity in balance with total available flood storage space in the system to reduce overall downstream peak floodflows. The F-CO Program also can modify operation of reservoirs in a way that will improve flood management and provide opportunities for more aggressive refilling of reservoirs during dry years. Such operations could increase water supplies within reservoirs, especially in dry years when the water supply system is most stressed.



Water supply benefits from the F-CO Program would vary depending on current reservoir operations rules, watershed hydrology, flexibility in reservoir operation and physical outlet facilities (i.e., adequate release capacity), quality of reservoir inflow forecasts, and other factors. Therefore, a case-by-case study of flood management and multipurpose reservoirs will be needed to adequately define and quantify the potential benefits. For additional details, see Master Response 7.

It should further be noted that CEQA Guidelines Section 15064(d) directs the lead agency to focus the analysis under CEQA on “the direct physical changes in the environment which may be caused by the project and reasonably foreseeable indirect physical changes in the environment which may be caused by the project.” The analysis of the impacts of other projects, including water supply projects, on flood management is appropriately the focus of the CEQA documentation for those other projects.

***G\_AR1-11***

As stated in Master Responses 13 and 14, a multiphase public engagement planning process informed development of the 2012 CVFPP and provided many different venues for communicating and engaging with a broad range of partners and interested parties. As part of post-adoption activities, the Board and DWR will continue to work collaboratively with local, State, and federal agencies, environmental interests, and other parties to develop regional flood management plans and further refine the proposed elements of the SSIA.

The CVFPP states that over the past 40 years, State and federal environmental laws and regulations have been developed to reduce environmental impacts of human activities, such as those related to endangered species, fisheries, wetlands, and water quality. Although progress has been made in achieving the goal of reducing environmental impacts of human activities, more can be achieved in terms of reducing impacts and restoring some of what has been lost. One challenge is that these laws and regulations have added to the complexity, cost, and time required to plan, design, construct, operate, and repair portions of the flood management system. Future flood management practices will need to continue to adapt to current and new environmental regulations.

Collaboration between flood system managers and resource and regulatory agencies will be critically important in developing approaches that support long-term integrated management of the flood management system that serves public safety and environmental needs. This type of collaboration, which is discussed below, has been occurring. Although not an exhaustive

list, the following are some of the challenges to address that will improve the ability to manage the system for multiple benefits:

- Addressing the needs of special-status species while also providing for the needs of multiple species that may use the habitat in the flood management system.
- Managing in perpetuity existing laws that set relatively short time limits for some environmental permits.
- Expanding the opportunities for implementing multi-benefit projects by increased partnering and leveraging multiple funding sources, because the process for developing management agreements for flood control projects under the multitude of federal and State environmental laws can be costly and complex and, in some cases, has been the responsibility of the project proponent, even when the actions provide multiple benefits.
- Refining work windows that meet the needs for species protection and flood activities, both of which can be very constrained by seasonal events and conditions, to support integrated management of the flood system. Work windows for species protection can challenge flood system managers in completing required annual maintenance. If habitat is improved and increased in and near the flood system, an intended outcome will be increases in population sizes and, potentially, populations of new species using restored areas, which could increase limitations on maintainers and thereby increase flood risks.
- Improving habitat in ways that reduce, or at least do not substantially increase, needs for maintenance of flood facilities. Additional long-term funding may be needed where such improvements substantially increase maintenance needs.

As stated in Master Response 3, the State supports efforts to reform FEMA's NFIP to more equitably reflect corresponding flood risks, including establishing a flood zone for agriculturally based communities to allow replacement of existing structures or reinvestment development in the floodplain. The State also supports identifying a special, lower-premium rate structure that reflects actual flood risks for agricultural buildings in rural-agricultural areas located in Special Flood Hazard Areas. The State will work with local flood management interests to pursue reform of the FEMA NFIP.

**G\_AR1-12**

See response to comment G\_AR1-04. Though not referred to as “demonstration projects,” some elements of the CVFPP have been implemented through the Early Implementation Projects Program since 2007.

The comments regarding recommended Board actions address the merits of the program. These comments do not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR. The comments are noted.

**G\_AR1-13**

The commenter states that the plan and supporting documents and tools appear to provide enough information for local agencies to undertake planning obligations under the 2007 flood legislation, that the commenter believes that local agencies should develop necessary information before approving new development, and that the timelines for local planning process should not be extended. The comments are noted. The comments do not raise specific questions or information regarding the CVFPP or the adequacy of the environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR.

**G\_AR1-14**

The comment that the SSIA correctly prioritizes urban areas for increased flood protection is noted.

As stated in Master Response 8, the preferred alternative had to meet additional specific objectives. The Enhance Flood System Capacity Approach did not meet the objective to “Maximize Flood Risk Reduction Benefits within the Practical Constraints of Available Funds” by ensuring that technically feasible and cost-effective solutions are implemented to maximize the flood-risk reduction benefits given the practical limitations of available funding, and providing a feasible, comprehensive, and long-term financing plan for implementing the plan.

**G\_AR1-15**

The comment generally is consistent with a number of the elements of the CVFPP. The comment is noted.

**G\_AR1-16**

As stated in Master Response 14, the State has a strong interest in coordinating and implementing integrated projects that achieve multiple

benefits. Effective integration across planning efforts means that all programs and projects, when implemented, work together to achieve key goals in a cost-effective manner; are sequenced and prioritized appropriately; and do not adversely affect or interfere with intended benefits. Although effectively integrating planning across programs while considering multiple benefits can be challenging, doing so can also provide opportunities to share knowledge and identify mutually beneficial solutions that might not have been considered otherwise, thus minimizing duplication and reducing costs.

***G\_AR1-17***

DWR and the Board are fully aware of both the benefits and limitations of levee setbacks. Bypass expansions can involve levee setbacks. As stated in Master Response 1, expansion of the Sutter, Yolo, and Sacramento bypasses were identified as examples of increasing the overall capacity of the flood management system to convey and attenuate large flood events. Peak flood stages could be reduced along the Sacramento River, and to a lesser extent, along its tributaries. Lowering flood stages throughout much of the system would benefit urban, small-community, and rural-agricultural areas alike. Constructing new bypasses, such as constructing a bypass from the upper Feather River to the Butte Basin and expanding Paradise Cut from the San Joaquin River into the south Delta, would further contribute to reducing peak flood stage along reaches of the Feather River and lower San Joaquin River.

Several factors would be considered in the design and operation of bypass improvement elements: existing land uses, hydraulic considerations, ecosystem restoration features and benefits (including conservation and restoration of aquatic and floodplain habitats), and continued compatible agricultural land uses within the bypass.

Although specific conceptual levee setbacks not associated with a bypass expansion were not included in the SSIA, the CVFPP does not prevent such setbacks from being proposed during future planning processes.

For additional details, see Master Response 1.

***G\_AR1-18***

This comment provides support and justification for flood bypass expansions. The CVFPP includes bypass expansions. As stated in Master Response 1, the existing bypass system in the Sacramento River Basin (including the Sutter and Yolo bypasses and associated inflow weirs) forms the central backbone of the Sacramento River Flood Control Project and redirects damaging floodflows away from the main channels of the

Sacramento and Feather rivers. The considerable capacity of the bypass system (up to 490,000 cfs) also slows the movement of floods, effectively attenuating flood peaks and flows into the Delta. The existing bypass system also supports a vibrant seasonal agricultural economy and provides important habitat for multiple terrestrial and aquatic species. In the San Joaquin River Basin, the bypass system includes the Chowchilla, Eastside, and Mariposa bypasses.

The Central Valley Flood Protection Act of 2008 requires DWR to evaluate ways to "...expand the capacity of the flood protection system in the Sacramento–San Joaquin Valley to either reduce floodflows or convey flood waters away from urban areas" (CWC Section 9616(a)(2)). Bypasses have served an essential role in providing these functions.

The CVFPP's recommended approach—the SSIA—includes proposals for new bypasses and expansions as a potentially cost-effective, systemwide approach to (1) provide flood protection benefits to large areas throughout the SPFC planning area (including rural-agricultural areas, small communities, and urban areas); (2) provide opportunities to improve ecosystem functions and continuity and contribute to mitigation for proposed structural improvements, as well as mitigation for operations and maintenance of flood management facilities; and (3) provide flexibility to adapt to future change in climate and improved system resiliency.

Input on Paradise Cut hydraulics is appreciated. Potentially feasible bypass expansions, such as Paradise Cut, will be subject to additional analyses and hydraulic modeling during basin-wide feasibility studies described in Master Response 14. Additional information will be provided at the project level for projects advanced for implementation.

For additional details, see Master Response 1.

The comments regarding recommended Board actions address the merits of the CVFPP. These comments do not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR. The comments are noted.

**G\_AR1-19**

The Central Valley Flood Protection Act of 2008 requires DWR to evaluate ways to "...expand the capacity of the flood protection system in the Sacramento–San Joaquin Valley to either reduce floodflows or convey flood waters away from urban areas" (CWC Section 9616(a)(2)). Bypasses have served an essential role in providing these functions.

The CVFPP's recommended approach—the SSIA—includes proposals for new bypasses and expansions as a potentially cost-effective, systemwide approach to (1) provide flood protection benefits to large areas throughout the SPFC planning area (including rural-agricultural areas, small communities, and urban areas); (2) provide opportunities to improve ecosystem functions and continuity and contribute to mitigation for proposed structural improvements, as well as mitigation for operations and maintenance of flood management facilities; and (3) provide flexibility to adapt to future change in climate and improved system resiliency.

Constructing a bypass from the upper Feather River to the Butte Basin would further contribute to reducing peak flood stage along reaches of the Feather River. Several factors would be considered in the design and operation of bypass improvement elements: existing land uses, hydraulic considerations, ecosystem restoration features and benefits (including conservation and restoration of aquatic and floodplain habitats), and continued compatible agricultural land uses within the bypass.

The CVFPP is a high-level document that describes the State's vision for a sustainable flood management system in the Central Valley. The SSIA is a responsible and balanced investment approach to achieve this vision. The CVFPP and its PEIR do not permit any specific actions to move forward that would be subject to further evaluation under CEQA. The CVFPP does not provide detailed project descriptions or funding assurances, nor does it preclude any future actions that could contribute to flood management goals.

Specific dimensions, capacities, and alignments for expanded and new bypasses have not been determined as part of the preliminary analyses conducted for the 2012 CVFPP. The analyses contained in the 2012 CVFPP are intended to be conceptual only; they were included as a basis for a program-level analysis that would allow broad comparisons of various flood management options. Potential locations and preliminary sizes described in the plan were identified using information obtained from previous studies and through discussions with local agencies and stakeholders.

Considerable additional work will be required before the bypass projects proposed in the plan are approved and implemented. Details about the dimensions, capacities, and alignments of expanded and new bypasses will be refined during post-adoption implementation activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these activities are conducted, the feasibility of

proposed bypass elements will be evaluated and opportunities for public engagement and input will become available.

The PEIR recognizes that converting current land uses (particularly agricultural uses) to bypass and related uses (such as habitat and recreation) would result in potentially significant and unavoidable impacts, particularly on agriculture, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMAs and LTMAAs). Many commenters expressed the view that such conversions should not occur, and that including such conversions in the SSIA undervalues agriculture as a primary industry in the Central Valley that provides a range of economic, social, habitat, and other benefits. Many commenters also explained that particular lands have been in family ownership for generations, often dating back to the earliest days of statehood. DWR and the Board respect these benefits and the relationships that many individuals have to any lands that might be converted, which are anticipated to be substantial topics during any project-level public engagement processes. However, the DPEIR has adequately addressed the environmental issues at a program level and no new significant environmental topics or information were raised in the comments.

The DPEIR addresses potential impacts on habitat for sensitive species, such as migratory waterfowl, in Section 3.6, “Biological Resources—Terrestrial.” In particular, Impacts BIO-T-1 and BIO-T-2 address, at a program level, the possible effects of construction of new bypasses or modification of existing bypasses, on sensitive species and/or their habitats. Specific impacts on the Butte Sink, Cherokee Canal, Little Dry Creek State Wildlife Area, or Sutter National Wildlife Refuge are not addressed in the DPEIR because specific proposals for management actions have not been made as part of the CVFPP. Such effects would be considered through CEQA and/or NEPA compliance, and/or through natural resource regulatory permitting processes, at the time that a specific management action is proposed.

The DPEIR addresses a reasonable range of potentially feasible alternatives in Chapter 5.0, “Alternatives.” In particular, Section 5.4.5 describes the Enhance Flood System Capacity Alternative, which focuses on enhancing the flood system’s storage and conveyance capacity to achieve multiple benefits (see DPEIR page 5-28). The specific proposal suggested in the comment (evaluating additional setback levees along the Feather River) could be considered during future planning processes, and the CVFPP does not preclude such consideration.

**G\_AR1-20**

DWR and the Board appreciate and will take into consideration the commenter’s input on program and project funding. As stated in Master

Response 15, the Central Valley Flood Protection Act of 2008 (SB 5) does not commit the State to any specific level of flood protection, action, prioritization, or funding (see CWC Section 9603). In recognition of current funding limitations, State investments under the SSIA would be prioritized commensurate with risks to people and property and opportunities to achieve multiple benefits. Consequently, State investments under the 2012 CVFPP would vary from region to region, depending on the assets at risk (people, property, and infrastructure) and severity of flood risk (frequency and depth). However, most areas protected by the SPFC would realize flood risk management benefits under the SSIA.

As part of CVFPP implementation, the regional planning process will gather DWR, the Board, and local interests (flood management agencies, land use agencies, flood emergency responders, permitting agencies, environmental and agricultural interests, and other stakeholders) to develop regional plans that will include lists of prioritized projects and funding strategies for each of the nine regions identified in the CVFPP. In a parallel effort, a systemwide planning process will refine the basin-specific objectives (Sacramento and San Joaquin basins) identified in the 2012 CVFPP. The most promising system elements will be combined with the prioritized list of regional elements identified in the regional plans to form SSIA “alternatives” for further evaluation in two basin-wide feasibility studies, one in the Sacramento River Basin and one in the San Joaquin River Basin.

Propositions 1E and 84 approved \$4.9 billion for statewide flood management improvements. Up to \$3.3 billion is allocated to improvements in the Central Valley (i.e., flood protection for areas protected by SPFC facilities). DWR invested approximately \$1.6 billion of the bond funds between 2007 and 2011 (along with about \$490 million in local investments and \$780 million in federal investments), conducting emergency repairs, early-implementation projects, and other improvements. Up to \$1.7 billion of additional bond funding will be available during the next 5 years for CVFPP-related projects. Use of bond funds will be prioritized based on the severity of flood risks, considering proposed project costs and benefits and contributions to basin-wide solutions (consistent with the CVFPP).

The current available bond funding is insufficient to implement the entirety of the recommended SSIA. After the Board adopts the CVFPP, DWR will create a financing plan for potential legislative actions to fund the next increment of capital improvements, O&M, and residual risk management activities for the CVFPP. The CVFPP Financing Plan will be informed by other post-adoption activities, including regional and basin-wide planning.



Flood management projects are typically cost-shared among federal, State, and local government agencies. Under existing federal law, the federal cost-share for construction may be 50–65 percent of the total project cost, depending on the amount of lands, easements, rights-of-way, and relocations necessary for the project. In recent years, many federally authorized projects and studies have not been adequately funded by the federal government.

Under State law, the State cost-share for federal flood projects is currently between 50 and 70 percent of the nonfederal share of the project costs, depending on the project's contributions to multiple objectives. After the passage of Proposition 84 and Proposition 1E, DWR developed interim cost-sharing guidelines for flood projects where the federal government is not currently sharing in the project costs. The State cost-share under these guidelines may range from 50 to 90 percent, depending on the project's contribution to multiple objectives and the degree to which the local area may be economically disadvantaged. Although the State currently has bond funds available for some flood projects, funding at this level may be unsustainable. Insufficient State funds are available to implement all of the SSIA. The CVFPP Financing Plan will address these cost-share formulas and potential new sources of funds to pay the capital costs.

Regarding partnering with other stakeholders, as stated in Master Response 13, a multiphase public engagement planning process informed development of the 2012 CVFPP and provided many different venues for communicating and engaging with a broad range of partners and interested parties. This extensive public engagement process for plan development, which began in January 2009, involved about 450 people representing public agencies, businesses, interest-based organizations, and members of the public. The process included nearly 300 meetings and more than 40 publications, in addition to development of a public Web site and webinars. A full list of participants and forms of engagement in plan development are available in Attachment 5, "Engagement Record," in Appendix A, "Central Valley Flood Protection Plan." The participants in the engagement process assisted DWR in identifying problems, developing CVFPP goals, identifying the range of management actions to consider in the CVFPP, and reviewing and commenting on the draft content of the CVFPP.

DWR will continue to pursue collaborative efforts with other public agencies and nongovernmental organizations for numerous purposes, including the potential to leverage limited funding with contributions from other sources where available.

For additional details, see Master Responses 13 and 15.

**G\_AR1-21**

Chapter 5.0 of the DPEIR addresses the comparative effects of a range of alternatives to the proposed CVFPP. These comments do not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR. The comments are noted.

**G\_AR1-22**

As stated in Master Response 17, recent CEQA case law suggests that an EIR is not required to evaluate the effects of climate change on proposed projects. However, CWC Section 9614(f) requires the CVFPP to include a “description of the probable impacts of projected climate change . . . on the ability of the system to provide adequate levels of flood protection.” To address this requirement and promote the informational and public participation purposes of CEQA, an analysis of the effects of climate change was included in Attachment 8K, “Climate Change Analysis,” in Appendix A, “Central Valley Flood Protection Plan.”

The current science and best available information do not properly support a complete, quantitative analysis for climate change impacts on flood management. Climate change impacts and considerations have been incorporated into many recent and ongoing California resources planning studies, using varying analytical approaches. The CVFPP is the first major policy-level study with broad applications that addresses climate change for flood management in California. Typical analyses of climate change impacts—that is, assessments for long-term water supply needs—consider likely changes in average temperature and precipitation. However, climate change impacts on extreme events, such as floods, will not result from changes in averages, but from changes in local extremes.

To that end, DWR also has invested resources in developing a unique approach for assessing the impacts of climate change on Central Valley flood management. DWR has worked with leading experts and practitioners in the field to develop a new methodology based on the intensity of “atmospheric rivers,” which are fast-moving, concentrated streams of water vapor that can release heavy rains. The commonly known “Pineapple Express” is a form of atmospheric river.

However, insufficient data are available to be able to predict the magnitude or frequency of climate change impacts on extreme storm events, and climate projections from global climate models have difficulty representing regional- and local-scale precipitation patterns and processes that drive extreme events. DWR is working instead on the concept of prudent

decision making that focuses on investments that could accommodate a broader range of climate change scenarios, rather than optimizing investments within a few selected extreme scenarios. DWR recently applied the resulting Threshold Analysis Approach to the Yuba-Feather system in a proof-of-concept pilot study. The results of the pilot study suggest that under F-CO, the Yuba River system is more vulnerable to changing climate conditions because of the limited regulating capacity (outlet release capacity) of New Bullards Bar Dam. This information provides guidance for the overall investment strategy for modifications such as enlarging outlets at New Bullards Bar Dam. DWR intends to fully develop the Threshold Analysis Approach for the 2017 CVFPP Update with new Central Valley hydrology and improved atmospheric river indices. This pilot study and the overview of potential climate change effects on the Central Valley flood management system are further detailed in Attachment 8K, "Climate Change Analysis," in Appendix A, "Central Valley Flood Protection Plan."

Although the 2012 CVFPP does not include a complete, quantitative analysis for climate change impacts on flood management, the CVFPP does include various system elements in its climate change adaptation strategy. The system elements provide additional benefits to the regional elements, and improve the overall function and performance of the SPFC in managing large floods. They also provide greater flexibility in accommodating future hydrologic changes, including climate change, and provide greater system resiliency in the face of changing downstream conditions. An evaluation of climate change in Section 6.6 of the DPEIR, titled "Effects of Global Climate Change on Program Facilities and Operations," comes to similar conclusions.

The SSIA includes these system elements that provide flexibility to accommodate higher flows resulting from climate change:

1. Wider bypasses to lower floodwater surface elevations would increase flow-carrying capacity and flexibility to deal with higher floodflows that may occur because of climate change.
2. Changes in reservoir operations from Forecast-Based Operations and F-CO can provide additional flexibility and adaptability to changes in extreme flood events.
3. The SSIA does not preclude State participation with others in reservoir expansion projects, and includes obtaining rights for floodplain transitory storage from willing landowners.

Sea-level rise will affect peak water surface elevations within the Delta and some distance upstream along its tributaries. The estimated average sea-level rise is currently under review by the National Research Council. For the 2012 CVFPP, high-tide conditions during the 1997 flood were used as the boundary conditions for hydraulic analysis; this tide was about 2 feet higher than would normally be expected on the basis of solar and lunar gravitational forces that create tides, and could be considered an initial, surrogate sea-level-rise condition resulting from climate change. DWR will continue to coordinate with other DWR programs, the Delta Stewardship Council's Delta Plan, and ongoing USACE feasibility studies to collectively address how sea-level rise could contribute to potential estuary flooding in the Delta. Improved information about sea-level rise will be used in the 2017 CVFPP Update. DWR will develop approaches to address sea-level rise that may vary depending on the expected range and rate of sea-level rise.

DWR recognizes that the Enhance Flood System Capacity approach and alternative could increase the ability of the system to respond to increased discharges as a result of climate change, but has found that alternative to be financially infeasible. However, the CVFPP does not preclude consideration of additional measures contained in that alternative during future planning processes.

### **G\_AR1-23**

As stated in Master Response 9, the SSIA was formulated by assembling the most promising, affordable, and timely elements of the three preliminary approaches to best meet legislative requirements and identified CVFPP goals. The SSIA reflects a balanced and fiscally responsible approach, which will be developed further as DWR completes more detailed studies and designs for site-specific capital improvements and develops other, systemwide flood improvement projects. The Central Valley Flood Protection Act of 2008 (SB 5) requires a systemwide approach for developing the CVFPP (CWC Section 9603) and requires inclusion of multiple benefits, where feasible (CWC Section 9616). Not all potential SSIA benefits have been detailed or quantified (e.g., avoided damage to infrastructure and/or life loss, ecosystem restoration), and the planning-level cost estimates remain preliminary; therefore, it is inappropriate to analyze the benefit-cost ratio using information contained in the high-level 2012 CVFPP. During post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, and development of a financing plan for the CVFPP), DWR will refine the physical elements of the CVFPP and confirm their feasibility, including the costs and benefits of site-specific improvements.

For additional details, see Master Response 9.

**G\_AR1-24**

The commenter’s input on the alternatives process has been taken into consideration. As stated in Master Response 9, three preliminary approaches were used to explore a range of potential physical changes to the existing flood management system and help highlight needed policies or other management actions: Achieve SPFC Design Flow Capacity, Protect High-Risk Communities, and Enhance Flood System Capacity. Evaluating these preliminary approaches provided information on their costs, benefits, and overall effectiveness. None of the three preliminary approaches were found to fully satisfy the legislative requirements and CVFPP goals in a cost-effective manner. However, the most promising elements of each were combined to formulate the State’s preferred approach—the SSIA. The CVFPP and accompanying attachments provide additional details about the formulation and screening of elements included in the SSIA.

See response to comment G\_AR1-01 on program vision and response to comment G\_AR1-03 on program objectives. For additional details, see Master Response 9. Also see Chapter 5.0, “Alternatives,” in the DPEIR.

**G\_AR1-25**

See response to comment G\_AR1-04.

**G\_AR1-26**

See response to comment G\_AR1-24. The CVFPP does not preclude consideration of additional measures, contained in the Enhance Flood System Capacity approach, during future planning processes.

**G\_AR1-27**

See response to comment G\_AR1-24.

As stated in Master Response 7, Appendix E, “2012 Central Valley Flood Protection Plan Conservation Framework,” provides a preview of a long-term Conservation Strategy that DWR is developing to support the 2017 CVFPP Update. The Conservation Framework focuses on promoting ecosystem functions and multi-benefit projects in the context of integrated flood management for near-term implementation actions and projects. The Conservation Framework provides an overview of the floodway ecosystem conditions and trends and key conservation goals that further clarify the CVFPP’s ecosystem goal.

For additional details about multi-benefit projects, see Master Response 7. For additional details about bypass expansions and levee setbacks, see Master Response 1 and response to comment G\_AR1-17.

**G\_AR1-28**

The cost analysis information provided by the commenter is noted. As stated in Master Response 9, the SSIA was formulated by assembling the most promising, affordable, and timely elements of the three preliminary approaches to best meet legislative requirements and identified CVFPP goals. The SSIA reflects a balanced and fiscally responsible approach, which will be developed further as DWR completes more detailed studies and designs for site-specific capital improvements and develops other, systemwide flood improvement projects. The Central Valley Flood Protection Act of 2008 (SB 5) requires a systemwide approach for developing the CVFPP (CWC Section 9603) and requires inclusion of multiple benefits, where feasible (CWC Section 9616). Not all potential SSIA benefits have been detailed or quantified (e.g., avoided damage to infrastructure and/or life loss, ecosystem restoration), and the planning-level cost estimates remain preliminary; therefore, it is inappropriate to analyze the benefit-cost ratio using information contained in the high-level 2012 CVFPP. During post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, and development of a financing plan for the CVFPP), DWR will refine the physical elements of the CVFPP and confirm their feasibility, including the costs and benefits of site-specific improvements.

Specific project features ultimately implemented for the SSIA will depend on a host of factors. These factors include the results of detailed project feasibility studies; designs and cost estimates; environmental benefits and impacts; interaction with other local projects and system improvements; participation by local, State, and federal agencies in project implementation; and changing physical, institutional, and economic conditions. Costs presented in the 2012 CVFPP are preliminary planning-level estimates. The actual costs of these elements will depend on the specific projects that are justified by feasibility studies, project scopes, implementation times, future economic and contractor-bidding conditions, and many other factors. Funding sources for SSIA projects will vary according to factors such as the type of project or program, beneficiaries, availability of funds, and project or program urgency. Cost-sharing among State, federal, and local agencies may also change depending on project objectives and agency interests. Post-adoption activities (regional flood management planning, development of basin-wide feasibility studies, and development of a financing plan for the CVFPP) will further develop and refine additional project-specific details on cost, feasibility, funding, cost sharing, and local capacity to pay.

Currently available bond funding is insufficient to fully implement the recommended SSIA as a whole. After adoption of the CVFPP in 2012,

DWR will prepare a framework for financing projects at a regional level. DWR will use the information gathered during preparation of the framework to prepare the financing plan for the CVFPP that will guide investment in flood-risk management in the Central Valley during the next 20 years (CWC Section 9616(a)(13)). The financing plan will be available in 2013, after adoption of the 2012 CVFPP. The financing plan is critical to implementation, given the uncertainty regarding State, federal, and local agencies' budgets and cost-sharing capabilities. The financing plan may include legislative actions to establish reliable funding for continued implementation of the SSIA in its totality to benefit the entire Central Valley and state of California.

For additional details about CVFPP funding, see Master Response 9.

**G\_AR1-29**

The comment suggests that it would be inconsistent for the JFP at Folsom to be accounted in the budget for the SSIA (i.e., included as a cost of the program) while at the same time being included in the No-Project Alternative. However, this is appropriate because of the differing purposes of the two analyses. Because costs for the JFP will be incurred in the future, it would be appropriate to account them at that time as part of the SSIA. However, the No-Project Alternative must be based on a reasonable forecast of future conditions, which includes the JFP (CEQA Guidelines Section 15126.6(e)).

The comment also appears to suggest that hydraulic benefits from the JFP should be accounted for in connection with implementation of other portions of the SSIA, such as an expansion of the Yolo Bypass, thus making the project "self-mitigating." Presumably this comment is intended to refer to the Board's evaluation of future activities, such as bypass expansions, to ensure adequate hydraulic performance. However, the Board's future engineering and technical evaluations will be based on standardized procedures described in the Title 23 regulations, which will determine how those evaluations are performed. Moreover, whether these evaluations (with or without consideration of benefits from the JFP) will have any effect on the environment is speculative at this time.

The comment frames these suggestions in terms of the appropriate "baseline." However, the base case for financial planning purposes, the No-Project Alternative, and the environmental baseline under CEQA are not necessarily the same. In fact, Section 15126.6 of the CEQA Guidelines expressly states, "The no project alternative analysis is not the baseline for determining whether the proposed project's environmental impacts may be significant, unless it is identical to the existing environmental setting analysis which does establish that baseline."

CEQA analysis typically compares project conditions to the existing environmental setting at the time the NOP for an EIR is issued, by analyzing what are commonly referred to as “existing plus project” conditions. Under Section 15125(a) of the CEQA Guidelines, the physical environmental conditions in the vicinity of the project at the time the NOP is published “will *normally* constitute the baseline physical conditions by which a lead agency determines whether an impact is significant” (emphasis added).

However, the CEQA Guidelines allow flexibility to utilize a different approach. The use of the term “normally” provides the lead agency with discretion to deviate from the standard time-of-review baseline.<sup>1</sup> As the California Supreme Court recently explained, “[n]either CEQA nor the CEQA Guidelines mandates a uniform, inflexible rule for determination of the existing conditions baseline.”<sup>2</sup>

The following text in Section 3.1, “Approach to Environmental Analysis,” of the DPEIR describes the establishment of an environmental baseline for analysis:

The “Environmental Setting” section describes the physical environmental conditions assumed in this PEIR for analyzing the effects of the CVFPP. The environmental setting generally consists of the existing physical environment as of October 27, 2010, the date when DWR published the notice of preparation (NOP) to prepare an EIR for the CVFPP and filed it with the State Clearinghouse. Under CEQA, baseline environmental conditions are typically set at the time the NOP is published (CEQA Guidelines, Section 15125(a)). However, baseline information may describe conditions at a different time, such as if the most recent data available are from a year before the NOP was published.

In each topical section of the DPEIR, the environmental baseline is set based on the best available information describing the existing conditions at the time that the NOP was published as well as practical considerations related to the environmental topic. Water resource issues affected by hydrology typically are considered in light of a record of flows that vary over a historical period. Biological baselines are set based on the best available information from data sets such as the CNDDB, which in turn are made up of data collected from studies over a large geography and over a period of many years.

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<sup>1</sup> See *Fat v. County of Sacramento*, 97 Cal. App. 4th 1270, 1278 (2002).

<sup>2</sup> *Cmtys. for a Better Env't v. S. Coast Air Quality Mgmt. Dist.*, 48 Cal. 4th 310, 328 (2010).



**G\_AR1-30**

See response to comment G\_AR1-29.

Also, as stated in Master Response 12, the State is sensitive to the potential effects of repairs or improvements to SPFC facilities that may result in redirected hydraulic impacts upstream or downstream from these facilities, and is developing more detailed policies to minimize and mitigate potential impacts. Based on current evaluations (see Section 3.13; Attachment 8C, “Riverine Channel Evaluations”; and Attachment 8D, “Estuary Channel Evaluations,” in Appendix A, “Central Valley Flood Protection Plan”), implementing the SSIA as a whole would not result in adverse systemwide hydraulic effects, including any in the Delta. Peak floodflows may increase slightly (over current conditions) in certain reaches, but the expansion of conveyance capacity proposed in the SSIA would attenuate flood peaks and result generally in reduced peak flood stages throughout the system.

Future feasibility studies are needed to refine the proposed elements of the SSIA, and the ultimate configuration of facilities may vary from those presented in the 2012 CVFPP. Only at that time will the State have project-specific modeling results that indicate the specific magnitude and extent of hydraulic impacts, if any, from planned improvements within the system. Cost estimates for the SSIA in the 2012 CVFPP include an allowance for features to mitigate potential significant hydraulic impacts caused by project implementation.

The issue of potentially redirecting hydraulic impacts is also addressed in Section 3.13, “Hydrology,” in the DPEIR under Impact HYD-2 (NTMA), Impact HYD-4 (NTMA), Impact HYD-2 (LTMA), and Impact HYD-4 (LTMA). As indicated in these impact discussions, any project proponent implementing a project consistent with the SSIA that would affect flood stage elevations would need to obtain various applicable permits before project implementation (such as Section 408 and 208.10 authorization from USACE and encroachment permits from the Board). The project proponent would need to analyze the potential for the project to locally impede flow or transfer flood risk by causing changes in river velocity, stage, or cross section. Projects would not be authorized if changes in water surface elevation, and thus flooding potential, would increase above the maximum allowable rise set by these agencies. If the design of a project would result in an unacceptable increase in flooding potential, a project redesign or other mitigation would be required to meet agency standards before the project could be authorized and implemented.

For additional details, see Master Response 12.

**G\_AR1-31**

Future feasibility studies are needed to refine the proposed elements of the SSIA, and the ultimate configuration of facilities may vary from those presented in the 2012 CVFPP.

The comments regarding potential changes in the methodology and assumptions of future risk analyses are noted. The DPEIR and CVFPP use data from the 2000 U.S. Census and DOF for reasons of internal consistency. All current estimates and projections provided by DOF are based on a benchmark from the 2000 U.S. Census. Updates to key DOF demographic estimates and projects based on the 2010 U.S. Census benchmark are not anticipated until late 2012 or 2013. It is acknowledged that 2010 DOF estimates (based on a benchmark from the 2000 U.S. Census) differ substantially from U.S. Census 2010 figures. These differences are largely attributable to the methods used by the respective agencies to tabulate domestic migration and the effect of the nationwide recession (December 2007 through June 2009) on birth rates, domestic migration, and international migration. In addition, data from the 2010 U.S. Census are still being adjusted, as the Census Question Resolution process is ongoing (June 2010 through June 2012).

**G\_AR1-32**

Future feasibility studies are needed to refine the proposed elements of the SSIA, and the ultimate configuration of facilities may vary from those presented in the 2012 CVFPP. Further “optimization” of the SSIA will take place as part of the basin and regional planning processes. For additional details about multi-benefit projects, see Master Response 7. For additional details about bypass expansions and levee setbacks, see Master Response 1 and response to comment G\_AR1-17.

The comment identifies reasons why the construction of new reservoirs or expansion of existing reservoirs may not feasibly achieve the objectives of the CVFPP, generally consistent with DWR’s conclusion on the same subject as stated in Master Response 10. The comment is noted.

**G\_AR1-33**

See response to comment G\_AR1-32. The cost effectiveness of the SSIA is presented in Sections 2.8 and 3.1 in Appendix A, “Central Valley Flood Protection Plan”). As stated in Master Response 9, the SSIA was formulated by assembling the most promising, affordable, and timely elements of the three preliminary approaches to best meet legislative requirements and identified CVFPP goals. The SSIA reflects a balanced and fiscally responsible approach, which will be developed further as DWR completes more detailed studies and designs for site-specific capital

improvements and develops other, systemwide flood improvement projects. The Central Valley Flood Protection Act of 2008 (SB 5) requires a systemwide approach for developing the CVFPP (CWC Section 9603) and requires inclusion of multiple benefits, where feasible (CWC Section 9616). Not all potential SSIA benefits have been detailed or quantified (e.g., avoided damage to infrastructure and/or life loss, ecosystem restoration), and the planning-level cost estimates remain preliminary; therefore, it is inappropriate to analyze the benefit-cost ratio using information contained in the high-level 2012 CVFPP. During post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, and development of a financing plan for the CVFPP), DWR will refine the physical elements of the CVFPP and confirm their feasibility, including the costs and benefits of site-specific improvements. For additional details, see Master Response 9.

The comment regarding recommended Board actions addresses the merits of the program. This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-34**

The purposes and objectives of the Conservation Framework are stated in Appendix E, Section 1.3, “Conservation Framework Purpose and Phasing.”

As stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)).

The SSIA includes the supporting goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time. Under the SSIA, ecosystem restoration opportunities are integral parts of flood system improvements, including projects for urban areas, small communities, and rural-agricultural areas. Integrating ecosystem restoration into these flood protection projects will focus on preserving important SRA habitat along riverbanks and help restore the regional continuity/connectivity of such habitats. In addition, SSIA ecosystem restoration activities may include improving fish passage, increasing the extent of inundated floodplain habitat, creating opportunities to allow river meandering and other

geomorphic processes, or other measures that may be identified during post-adoption activities. Potential effects on flood management and channel capacity will be considered during implementation of any ecosystem restoration actions. Post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, State and USACE permitting) will allow for detailed development and review of the conceptual ecosystem restoration targets described in the CVFPP and its attached Conservation Framework.

Appendix E, “2012 Central Valley Flood Protection Plan Conservation Framework,” provides a preview of a long-term Conservation Strategy that DWR is developing to support the 2017 CVFPP Update. The Conservation Framework focuses on promoting ecosystem functions and multi-benefit projects in the context of integrated flood management for near-term implementation actions and projects. The Conservation Framework provides an overview of the floodway ecosystem conditions and trends and key conservation goals that further clarify the CVFPP’s ecosystem goal.

For additional details, see Master Response 7.

**G\_AR1-35**

See response to comment G\_AR1-34.

**G\_AR1-36**

See response to comment G\_AR1-34.

As stated in Master Response 13, anticipated activities after adoption of the 2012 CVFPP include regional flood management planning, development of basin-wide feasibility studies, and completion of project-level proposals and environmental compliance. These efforts will engage local entities and stakeholders to help identify projects to meet local and regional needs for flood management, refine the conceptual system elements proposed in the adopted plan, and identify specific projects for construction.

As part of regional flood management planning, regional plans will be prepared with active participation by regional implementing, operating, and maintaining agencies; local land use agencies (counties and cities); agricultural and environmental interests; emergency responders; and tribes. This effort will collect on-the-ground information regarding flood risks and needs, identify local and regional improvement projects, assess the performance and feasibility of these projects, and develop plans that reflect the priorities of local entities in reducing flood risks in each of the nine regions identified in the CVFPP. Each plan will also assess proposed project costs and benefits, considering potential contributions to an

integrated and basin-wide solution. Development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts.

For additional details, see Master Response 13.

**G\_AR1-37**

See response to comment G\_AR1-34. For additional details about CVFPP goals, see Master Response 8.

**G\_AR1-38**

See response to comment G\_AR1-34.

The comments regarding recommended Board actions address the merits of the CVFPP. These comments do not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR. The comments are noted.

**G\_AR1-39**

As stated in Master Response 14, the 2012 CVFPP describes the State's vision for a sustainable flood management system in the Central Valley that provides a high degree of public safety, promotes long-term economic stability, and supports restoration of compatible riverine and floodplain ecosystems. The SSIA prioritizes State investments and other activities to contribute to achieving this vision on a systemwide scale, recognizing current funding limitations.

The SSIA is a conceptual plan for flood system improvements, and additional post-adoption work is needed to refine its individual elements. Anticipated post-adoption activities include regional flood management planning, development of basin-wide feasibility studies and the CVFPP Financing Plan, completion of project-level proposals and environmental compliance, development of the Conservation Strategy, and State and USACE permitting.

Some elements of the SSIA have already been implemented (through the Early Implementation Projects Program since 2007, for example). Others may be accomplished before the first update of the CVFPP in 2017, and many will require additional time to fully develop and implement. Ongoing and new planning studies, engineering, feasibility studies, environmental review, designs, funding, and partnering are required to better define, and

incrementally fund and implement, elements of the SSIA during the next 20–25 years.

DWR and the Board are the State lead agencies for implementing the CVFPP and preparing the 5-year CVFPP updates. CVFPP consistency is not a requirement of SB 5, and DWR and the Board retain flexibility in future activities; however, the State intends for all major flood management programs and projects in the Central Valley to be planned and implemented in a manner generally consistent with the vision, goals, and provisions of the CVFPP. DWR will also work closely with USACE and the Board to develop the federal *Central Valley Integrated Flood Management Study* and State basin-wide feasibility studies. In addition, the State is partnering with USACE on several regional feasibility and post authorization scope-change investigations aimed at modifying the State-federal flood management system.

The Board has review and permitting authority under the California Water Code and CCR Title 23 for any project, including those resulting from the CVFPP, that may encroach upon, improve, alter, or affect adopted plans of flood control (including the State-federal flood management systems, regulated streams, and designated floodways under the Board’s jurisdiction).

Regional flood management planning, to be conducted in each of nine regions identified in the 2012 CVFPP, is an important next step in identifying specific improvements to rural-agricultural areas, small communities, and urban areas consistent with the SSIA. Upon CVFPP adoption, DWR will work closely with local entities to collect on-the-ground information regarding flood risks and needs, identify potential local and regional improvement projects, assess the performance and feasibility of these projects, and develop proposals that reflect the priorities of local entities in reducing flood risks. Each regional plan will present an assessment of proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. DWR intends to provide guidance as well as technical and financial assistance to local agencies to prepare the regional flood management plans, subject to availability of funds.

Regional flood management plans are anticipated to:

- Assess regional flood risks and management actions (projects) to reduce these risks
- Discuss regional priorities, including criteria used to prioritize individual projects

- Describe specific projects, including their potential costs, regional and systemwide benefits, and beneficiaries
- Provide a financial plan describing how the proposed projects would be funded, including cost sharing and financing for local shares
- Describe regional governance of flood management

Development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts. Information and outcomes from the regional planning process will inform the State-led basin-wide feasibility studies, preparation of a financing plan for the CVFPP, and the first update of the CVFPP (scheduled for completion by 2017). This regional effort is scheduled to be launched publicly in June 2012 and is anticipated to continue through 2013.

DWR will engage regional flood planning partners to develop and implement communication strategies with broad interest groups to brief them on flood management planning in their regions. Regional implementing and operating agencies, land use agencies, and interest groups will be invited to participate in the planning process. Each regional planning process will seek input, as appropriate, from agricultural interests, environmental interests, permitting agencies/resource agencies, local emergency responders, tribes, and other stakeholders. DWR anticipates that a regional flood working group will be formed in each region.

Post-adoption activities will include development of two State-led basin-wide feasibility studies—one in the Sacramento River Basin and one in the San Joaquin River Basin—that will refine the broad description of the SSIA contained in the 2012 CVFPP. The basin-wide feasibility studies will (1) identify State interest in and articulate refinements to system elements and regional elements, (2) inform development of the CVFPP Financing Plan and the 2017 CVFPP update, and (3) help define the State’s locally preferred plan for consideration in ongoing and planned USACE federal feasibility studies. The basin-wide feasibility studies will focus on system elements, which may take longer to study and implement than other regional plan elements because of their scale and complexity.

State-led feasibility studies are intended to support State decision making, regardless of the corresponding level of federal participation. They do not necessarily cover the scope of a federal feasibility study; however, these State-led studies will be conducted to minimize, to the extent possible,

additional federal study needed to determine federal participation and facilitate subsequent authorization by Congress, if appropriate.

The basin-wide feasibility studies will be conducted in two primary phases. The first phase will be conducted concurrently with regional planning, and will focus on developing specific objectives and analyzing physical options for system elements (such as bypass expansion and new bypasses). The second phase will combine the most promising options for system elements with the prioritized list of regional elements identified in the regional flood management plans. These combinations of system element options and regional elements will form “alternatives” for further evaluation and comparison on a systemwide scale, representing refined alternatives for implementing the SSIA.

Stakeholder engagement will be an important and complex component of the basin-wide feasibility studies. The studies will be conducted in coordination with USACE (and ongoing cost-share feasibility studies) and local implementing agencies. It is anticipated that working groups will form to help evaluate and refine bypass expansion options, identify implementation challenges, and provide input in the planning process.

The State intends to complete both studies by mid-2015 to provide time to incorporate information and findings into the 2017 CVFPP Update. Interactions with other key planning efforts, such as regional flood management planning, the CVFPP Financing Plan, and Central Valley Floodplain Evaluation and Delineation Program, are important to meeting the anticipated schedule.

For additional details, see Master Response 14.

**G\_AR1-40**

See response to comment G\_AR1-39.

**G\_AR1-41**

See response to comment G\_AR1-39.

**G\_AR1-42**

See response to comment G\_AR1-39.

**G\_AR1-43**

See response to comment G\_AR1-39.



**G\_AR1-44**

As stated in Master Response 17, recent CEQA case law suggests that an EIR is not required to evaluate the effects of climate change on proposed projects. However, CWC Section 9614(f) requires the CVFPP to include a “description of the probable impacts of projected climate change . . . on the ability of the system to provide adequate levels of flood protection.” To address this requirement and promote the informational and public participation purposes of CEQA, an analysis of the effects of climate change was included in Attachment 8K, “Climate Change Analysis,” in Appendix A, “Central Valley Flood Protection Plan.”

The current science and best available information do not properly support a complete, quantitative analysis for climate change impacts on flood management. Climate change impacts and considerations have been incorporated into many recent and ongoing California resources planning studies, using varying analytical approaches. The CVFPP is the first major policy-level study with broad applications that addresses climate change for flood management in California. Typical analyses of climate change impacts—that is, assessments for long-term water supply needs—consider likely changes in average temperature and precipitation. However, climate change impacts on extreme events, such as floods, will not result from changes in averages, but from changes in local extremes.

To that end, DWR also has invested resources in developing a unique approach for assessing the impacts of climate change on Central Valley flood management. DWR has worked with leading experts and practitioners in the field to develop a new methodology based on the intensity of “atmospheric rivers,” which are fast-moving, concentrated streams of water vapor that can release heavy rains. The commonly known “Pineapple Express” is a form of atmospheric river.

However, insufficient data are available to be able to predict the magnitude or frequency of climate change impacts on extreme storm events, and climate projections from global climate models have difficulty representing regional- and local-scale precipitation patterns and processes that drive extreme events. DWR is working instead on the concept of prudent decision making that focuses on investments that could accommodate a broader range of climate change scenarios, rather than optimizing investments within a few selected extreme scenarios. DWR recently applied the resulting Threshold Analysis Approach to the Yuba-Feather system in a proof-of-concept pilot study. The results of the pilot study suggest that under F-CO, the Yuba River system is more vulnerable to changing climate conditions because of the limited regulating capacity (outlet release capacity) of New Bullards Bar Dam. This information provides guidance for the overall investment strategy for modifications

such as enlarging outlets at New Bullards Bar Dam. DWR intends to fully develop the Threshold Analysis Approach for the 2017 CVFPP Update with new Central Valley hydrology and improved atmospheric river indices. This pilot study and the overview of potential climate change effects on the Central Valley flood management system are further detailed in Attachment 8K, "Climate Change Analysis," in Appendix A, "Central Valley Flood Protection Plan."

Although the 2012 CVFPP does not include a complete, quantitative analysis for climate change impacts on flood management, the CVFPP does include various system elements in its climate change adaptation strategy. The system elements provide additional benefits to the regional elements, and improve the overall function and performance of the SPFC in managing large floods. They also provide greater flexibility in accommodating future hydrologic changes, including climate change, and provide greater system resiliency in the face of changing downstream conditions. An evaluation of climate change in Section 6.6 of the DPEIR, titled "Effects of Global Climate Change on Program Facilities and Operations," comes to similar conclusions.

The SSIA includes these system elements that provide flexibility to accommodate higher flows resulting from climate change:

1. Wider bypasses to lower floodwater surface elevations would increase flow-carrying capacity and flexibility to deal with higher floodflows that may occur because of climate change.
2. Changes in reservoir operations from Forecast-Based Operations and F-CO can provide additional flexibility and adaptability to changes in extreme flood events.
3. The SSIA does not preclude State participation with others in reservoir expansion projects, and includes obtaining rights for floodplain transitory storage from willing landowners.

Sea-level rise will affect peak water surface elevations within the Delta and some distance upstream along its tributaries. The estimated average sea-level rise is currently under review by the National Research Council. For the 2012 CVFPP, high-tide conditions during the 1997 flood were used as the boundary conditions for hydraulic analysis; this tide was about 2 feet higher than would normally be expected on the basis of solar and lunar gravitational forces that create tides, and could be considered an initial, surrogate sea-level-rise condition resulting from climate change. DWR will continue to coordinate with other DWR programs, the Delta Stewardship Council's Delta Plan, and ongoing USACE feasibility studies to

collectively address how sea-level rise could contribute to potential estuary flooding in the Delta. Improved information about sea-level rise will be used in the 2017 CVFPP Update. DWR will develop approaches to address sea-level rise that may vary depending on the expected range and rate of sea-level rise.

**G\_AR1-45**

For details about bypass expansions and levee setbacks, see Master Response 1 and response to comment G\_AR1-17.

The commenter suggests a specific wording change. This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The specific text change has been considered and is noted; however, no change to the CVFPP text was made.

**G\_AR1-46**

See response to comment G\_AR1-44. The commenter suggests a specific wording change. This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The specific text change has been considered and is noted; however, no change to the CVFPP text was made.

**G\_AR1-47**

DWR recognizes that climate change also may affect ecosystem function and water supply. The commenter suggests a specific wording change. This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The specific text change has been considered and is noted; however, no change to the CVFPP text was made.

**G\_AR1-48**

See responses to comments G\_AR1-44 and G\_AR1-49. The comments regarding recommended Board actions address the merits of the CVFPP. These comments do not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR. The comments are noted.

**G\_AR1-50**

As stated in Master Response 4, the Central Valley Flood Protection Act of 2008 establishes legislative requirements for the CVFPP. For example, the legislation directs DWR to consider structural and nonstructural methods for providing an urban level of flood protection (200-year or 0.5 percent chance) to current urban areas (CWC Sections 9614(i) and 9616(a)(6)), and encourages wise use of floodplains through a better connection between State flood protection decisions and local land use decisions (CWC Section 9616(a)(5)). The SSIA proposes flood protection investments for rural-agricultural areas, small communities, and urban areas consistent with legislative direction and commensurate with flood risk to people and property.

Specific SSIA flood protection targets are presented in Sections 3.2, 3.3, and 3.4 in Appendix A, “Central Valley Flood Protection Plan.” The SSIA identifies minimum flood protection targets when State investments are made to protect public safety in urban areas and small communities (protection from 200- and 100-year flood events, respectively). However, the plan acknowledges that State investments alone cannot achieve these targets in all communities without leveraging federal and local funds, and encourages higher levels of flood protection whenever feasible. The SSIA also outlines various State investments that would contribute to improved flood-risk management in rural-agricultural areas, and that are aimed at promoting sustainable rural-agricultural economies without inducing imprudent urban development in floodplains. The SSIA does not target a minimum level of flood protection for State investments in rural-agricultural areas outside of the small communities because conditions and local interests differ from one area to another, and additional regional planning efforts are needed to formulate solutions that meet community needs and State investment priorities. However, the SSIA includes various options for addressing flood risks in rural-agricultural areas, including the following:

- Projects to maintain levee crown elevations for existing rural SPFC levees and provide all-weather access roads for inspection and floodfighting
- Economically feasible projects to resolve known SPFC performance problems, in conjunction with development of criteria for rural levee repairs
- System elements (such as new and expanded bypasses) that would lower water surface elevations within some rural and urban channels

All areas would benefit from State investments in the SSIA to improve residual risk management, such as enhanced flood emergency preparedness, response, and recovery. For additional details, see Master Response 4.

**G\_AR1-51**

The comment is noted. See response to comment G\_AR1-50.

**G\_AR1-52**

See response to comment G\_AR1-10. As stated in Master Response 9, three preliminary approaches were used to explore a range of potential physical changes to the existing flood management system and help highlight needed policies or other management actions: Achieve SPFC Design Flow Capacity, Protect High-Risk Communities, and Enhance Flood System Capacity. Evaluating these preliminary approaches provided information on their costs, benefits, and overall effectiveness. None of the three preliminary approaches were found to fully satisfy the legislative requirements and CVFPP goals in a cost-effective manner. However, the most promising elements of each were combined to formulate the State's preferred approach—the SSIA. The CVFPP and accompanying attachments provide additional details about the formulation and screening of elements included in the SSIA.

For additional details, see Master Response 9.

**G\_AR1-53**

DWR and the Board recognize the aftermath of severe flooding. See response to comment G\_AR1-50, which addresses flood protection levels.

**G\_AR1-54**

See response to comment G\_AR1-31.

**G\_AR1-55**

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-56**

More detailed hydraulic modeling will occur during development of the regional feasibility studies and during project-level project formulation and analysis. As stated in Master Response 12, the State is sensitive to the potential effects of repairs or improvements to SPFC facilities that may

result in redirected hydraulic impacts upstream or downstream from these facilities, and is developing more detailed policies to minimize and mitigate potential impacts. Based on current evaluations (see Section 3.13; Attachment 8C, “Riverine Channel Evaluations”; and Attachment 8D, “Estuary Channel Evaluations,” in Appendix A, “Central Valley Flood Protection Plan”), implementing the SSIA as a whole would not result in adverse systemwide hydraulic effects, including any in the Delta. Peak floodflows may increase slightly (over current conditions) in certain reaches, but the expansion of conveyance capacity proposed in the SSIA would attenuate flood peaks and result generally in reduced peak flood stages throughout the system.

Future feasibility studies are needed to refine the proposed elements of the SSIA, and the ultimate configuration of facilities may vary from those presented in the 2012 CVFPP. Only at that time will the State have project-specific modeling results that indicate the specific magnitude and extent of hydraulic impacts, if any, from planned improvements within the system. Cost estimates for the SSIA in the 2012 CVFPP include an allowance for features to mitigate potential significant hydraulic impacts caused by project implementation.

For additional details, see Master Response 12.

**G\_AR1-57**

See response to comment G\_AR1-56.

**G\_AR1-58**

As stated in Master Response 10, in developing the CVFPP and formulating the SSIA, DWR considered various forms of storage for flood management, including operational changes to existing reservoirs with flood storage, new or expanded flood storage in reservoirs, and storage in floodplains. Specifically, one of the preliminary approaches—Enhance Flood System Capacity—included enlarging the flood storage allocation of several multipurpose reservoirs to improve management of flood risks on lands protected by the SPFC. This evaluation found potential benefits from and opportunities for reservoir flood storage and operational changes, such as improving flexibility in managing hydrologic changes (such as climate change) and potentially offsetting the hydraulic effects of certain system improvements on downstream reaches. At the same time, these analyses addressed both the physical limitations of these opportunities and the potential negative effects of increasing flood-storage allocations on water supply and other beneficial uses. The analyses of reservoir storage and flood operations that were conducted in support of the 2012 CVFPP are

described in Attachment 8B in Appendix A, “Central Valley Flood Protection Plan.” For additional details, see Master Response 10.

As stated in Master Response 24, the DPEIR evaluated a reasonable range of alternatives (seven were considered and five received full analysis, and a sixth alternative is included in the FPEIR for the non-CEQA purpose of helping support a future vegetation variance application to USACE) (see DPEIR Chapter 5.0, “Alternatives”). The DPEIR explained how additional alternatives were screened and the basis for eliminating some alternatives from more detailed consideration. The scope of the alternatives analysis in the DPEIR was sufficient to “foster informed decision making and public participation.” Attachment 7, “Plan Formulation Report,” in CVFPP Volume II provides additional information regarding the foundational development of alternatives presented in the DPEIR. A review of the 142-page alternatives analysis in the DPEIR demonstrates that the alternatives were adequately described and the potential environmental impacts comprehensively analyzed. The standard articulated in the CEQA Guidelines and case law has been more than satisfied. For additional details, see Master Response 10.

The specifics of this comment are noted. The comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR. No change to the CVFPP text was made.

**G\_AR1-59**

See response to comment G\_AR1-58.

**G\_AR1-60**

See response to comment G\_AR1-58.

**G\_AR1-61**

These comments do not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR. The comments are noted.

**G\_AR1-62**

The commenter states that Attachment 8D, “Estuary Channel Evaluations,” was not reviewed. No response is required because there is no comment on the attachment.

**G\_AR1-63**

The commenter states that Attachment 8E, “Levee System Performance,” was not reviewed. No response is required because there is no comment on the attachment.

**G\_AR1-64**

The commenter states that Attachment 8F, “Flood Damage Analysis,” was not reviewed. No response is required because there is no comment on the attachment.

**G\_AR1-65**

The commenter states that Attachment 8G, “Life Risk Analysis,” was not reviewed. No response is required because there is no comment on the attachment.

**G\_AR1-66**

The commenter states that Attachment 8H, “Regional Economic Analysis for SSIA,” was not reviewed. No response is required because there is no comment on the attachment.

**G\_AR1-67**

As stated in Master Response 9, three preliminary approaches were used to explore a range of potential physical changes to the existing flood management system and help highlight needed policies or other management actions: Achieve SPFC Design Flow Capacity, Protect High-Risk Communities, and Enhance Flood System Capacity. Evaluating these preliminary approaches provided information on their costs, benefits, and overall effectiveness. None of the three preliminary approaches were found to fully satisfy the legislative requirements and CVFPP goals in a cost-effective manner. However, the most promising elements of each were combined to formulate the State’s preferred approach—the SSIA. The CVFPP and accompanying attachments provide additional details about the formulation and screening of elements included in the SSIA.

The SSIA was formulated by assembling the most promising, affordable, and timely elements of the three preliminary approaches to best meet legislative requirements and identified CVFPP goals. The SSIA reflects a balanced and fiscally responsible approach, which will be developed further as DWR completes more detailed studies and designs for site-specific capital improvements and develops other, systemwide flood improvement projects. The Central Valley Flood Protection Act of 2008 (SB 5) requires a systemwide approach for developing the CVFPP (CWC Section 9603) and requires inclusion of multiple benefits, where feasible



(CWC Section 9616). Not all potential SSIA benefits have been detailed or quantified (e.g., avoided damage to infrastructure and/or life loss, ecosystem restoration), and the planning-level cost estimates remain preliminary; therefore, it is inappropriate to analyze the benefit-cost ratio using information contained in the high-level 2012 CVFPP. During post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, and development of a financing plan for the CVFPP), DWR will refine the physical elements of the CVFPP and confirm their feasibility, including the costs and benefits of site-specific improvements.

The SPFC must contend with a lack of stable funding and with concerns like deferred maintenance, changes to regulations and societal priorities, dated construction techniques, and imprudent development in deep floodplains, leaving almost a million people at risk. To address these challenges, and to meet legislative direction for a systemwide approach that focuses on public safety and promotes multi-benefit projects, DWR formulated the SSIA, with a preliminary cost estimated between \$14 billion and \$17 billion. The high cost of the SSIA reflects the costly nature of providing flood protection in the Central Valley's deep floodplains and the current conditions of the SPFC facilities, as described in the *Flood Control System Status Report* (DWR 2011).

Specific project features ultimately implemented for the SSIA will depend on a host of factors. These factors include the results of detailed project feasibility studies; designs and cost estimates; environmental benefits and impacts; interaction with other local projects and system improvements; participation by local, State, and federal agencies in project implementation; and changing physical, institutional, and economic conditions. Costs presented in the 2012 CVFPP are preliminary planning-level estimates. The actual costs of these elements will depend on the specific projects that are justified by feasibility studies, project scopes, implementation times, future economic and contractor-bidding conditions, and many other factors. Funding sources for SSIA projects will vary according to factors such as the type of project or program, beneficiaries, availability of funds, and project or program urgency. Cost-sharing among State, federal, and local agencies may also change depending on project objectives and agency interests. Post-adoption activities (regional flood management planning, development of basin-wide feasibility studies, and development of a financing plan for the CVFPP) will further develop and refine additional project-specific details on cost, feasibility, funding, cost sharing, and local capacity to pay.

Currently available bond funding is insufficient to fully implement the recommended SSIA as a whole. After adoption of the CVFPP in 2012,

DWR will prepare a framework for financing projects at a regional level. DWR will use the information gathered during preparation of the framework to prepare the financing plan for the CVFPP that will guide investment in flood-risk management in the Central Valley during the next 20 years (CWC Section 9616(a)(13)). The financing plan will be available in 2013, after adoption of the 2012 CVFPP. The financing plan is critical to implementation, given the uncertainty regarding State, federal, and local agencies' budgets and cost-sharing capabilities. The financing plan may include legislative actions to establish reliable funding for continued implementation of the SSIA in its totality to benefit the entire Central Valley and state of California. For additional details, see Master Response 9.

**G\_AR1-68**

See response to comment G\_AR1-67.

**G\_AR1-69**

See response to comment G\_AR1-67.

**G\_AR1-70**

See response to comment G\_AR1-67.

**G\_AR1-71**

See response to comment G\_AR1-67.

**G\_AR1-72**

As discussed in Master Response 8, in the CVFPP, DWR describes the SSIA, which is a proposal for achieving the State's vision for flood management. The SSIA helps achieve the State's vision for flood management in a balanced manner by promoting responsible investment of public funds, commensurate with flood risks, in projects that integrate multiple benefits, in proactive maintenance of SFPC facilities and residual risk management, and in wise management of floodplains protected by the SFPC. For additional details, see Master Response 8.

As discussed in Master Response 14, regional flood management planning, to be conducted in each of nine regions identified in the 2012 CVFPP, is an important next step in identifying specific improvements to rural-agricultural areas, small communities, and urban areas consistent with the SSIA. Upon CVFPP adoption, DWR will work closely with local entities to collect on-the-ground information regarding flood risks and needs, identify potential local and regional improvement projects, assess the performance and feasibility of these projects, and develop proposals that reflect the priorities of local entities in reducing flood risks. Each regional

plan will present an assessment of proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. DWR intends to provide guidance as well as technical and financial assistance to local agencies to prepare the regional flood management plans, subject to availability of funds.

Regional flood management plans are anticipated to:

- Assess regional flood risks and management actions (projects) to reduce these risks
- Discuss regional priorities, including criteria used to prioritize individual projects
- Describe specific projects, including their potential costs, regional and systemwide benefits, and beneficiaries
- Provide a financial plan describing how the proposed projects would be funded, including cost sharing and financing for local shares
- Describe regional governance of flood management

Development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts. Information and outcomes from the regional planning process will inform the State-led basin-wide feasibility studies, preparation of a financing plan for the CVFPP, and the first update of the CVFPP (scheduled for completion by 2017). This regional effort is scheduled to be launched publicly in June 2012 and is anticipated to continue through 2013.

For additional details, see Master Responses 8 and 14.

**G\_AR1-73**

The commenter includes a cross reference to Sections 9.3 and 9.4. No response is required because there is no comment here on Attachment 8J, “Cost Estimates.”

**G\_AR1-74**

The commenter includes a cross reference to Section 13. No response is required because there is no comment here on Attachment 8K, “Climate Change Analysis.”

**G\_AR1-75**

See response to comment G\_AR1-44.

**G\_AR1-76**

See response to comment G\_AR1-75.

**G\_AR1-77**

See response to comment G\_AR1-75. A suggested revision is made as part of this comment and is noted. The comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR. The specific text change has been considered and is noted; however, no change to the CVFPP text was made.

**G\_AR1-78**

See response to comment G\_AR1-75. A suggested revision is made as part of this comment and is noted. The comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR. The specific text change has been considered and is noted; however, no change to the CVFPP text was made.

**G\_AR1-79**

The commenter states that CVFPP Attachment 8L, “Groundwater Recharge Opportunities Analysis,” was not reviewed. No response is required because there is no comment on the attachment.

**G\_AR1-80**

The commenter includes a cross reference to Section 11. No response is required because there is no comment here on CVFPP Attachment 9, “Supporting Documentation for Conservation Framework.”

**G\_AR1-81**

The commenter states that CVFPP Attachment 9A, “Regional Advance Mitigation Planning,” was not reviewed. No response is required because there is no comment on the attachment.

**G\_AR1-82**

The purpose of the January 2012 report *Status and Trends of the Riparian and Riverine Ecosystems of the Systemwide Planning Area* was to summarize the current status and historical trends of riparian and riverine

ecosystems in the SPA for the CVFPP. This area includes lands that are subject to flooding under the current facilities and operation of the Sacramento–San Joaquin River Flood Management System. The lands that currently receive protection from the SPFC are entirely within the SPA.

The Status and Trends Report was intended to document the need for and support of the development of the Conservation Framework, a component of the 2012 CVFPP and the Conservation Strategy. The Status and Trends Report describes how environmental stewardship would be an integral part of CVFPP actions to improve integrated flood management in lands currently protected by facilities of the SPFC flood management system in the SPA, and how the Conservation Strategy will identify opportunities in the SPA to promote natural dynamic hydrologic and geomorphic processes; increase and improve the quantity, diversity, and connectivity of habitats; and promote the recovery and stability of native species' populations.

The Status and Trends Report is not intended to be an exhaustive description of the SPA's riparian and riverine ecosystems. Rather, it focuses on describing key relationships among the Sacramento Valley's and San Joaquin Valley's river flows, geomorphic processes, and ecosystem responses that are relevant for understanding how these ecosystems function and how key stressors have modified these ecosystems historically and continue to modify them today. It also identifies key data gaps regarding stressors and current status and trends. Documenting these relationships is an important initial step in the development of a Conservation Strategy.

The Status and Trends Report examines only those hydrologic and geomorphic processes that are most strongly linked to ecosystem functions, and it focuses on representative habitats and species that are most indicative of Sacramento Valley and San Joaquin Valley riparian and riverine ecosystems. Similarly, the report assesses the effects of only a limited number of stressors that are thought to have had the greatest effect on hydrologic and geomorphic processes and related riparian and riverine habitats. These stressors are strongly linked to the operations and maintenance of the SPFC because these stressors are most likely to be mitigated through potential modifications to the SPFC adopted as part of the CVFPP. As stated above, it is intended to provide a foundation for a more detailed assessment conducted during development of the Conservation Strategy.

The January 2012 Status and Trends Report, developed to support the 2012 CVFPP, will be followed by a more complete report to be prepared at a later date, in concert with the Conservation Strategy, during development of the 2017 CVFPP.

**G\_AR1-83**

The intent of Chapter 2, “Historical Conditions and Modifications of Central Valley Riparian and Riverine Ecosystems,” is to describe the historical conditions of the Sacramento Valley and San Joaquin Valley’s riparian and riverine ecosystems before the Gold Rush and the subsequent modification of these ecosystems associated with settlement and development. The description of historical conditions and modifications provides a framework for understanding the origins of conditions observed today.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-84**

See response to comment G\_AR1-83. The State used the best available information to understand and characterize the historical and current conditions of the Sacramento and San Joaquin River watersheds. This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-85**

See response to comment G\_AR1-84. The comment is noted.

**G\_AR1-86**

Chapter 3, “Basis for Evaluation of Status, Trends, and Stressors,” of the Status and Trends Report summarizes hydrologic and geomorphic fluvial processes, ecosystem responses to these processes, and stressors that have modified these processes and resulted in adverse effects on Sacramento Valley and San Joaquin Valley riparian and riverine ecosystems. It provides the basis for the description of specific metrics that are indicators of the processes, stressors, and ecosystem responses presented in Chapter 4 of the Status and Trends Report.

Chapter 3 does not provide a comprehensive account of fluvial processes and stressors. Instead, it presents an overview of hydrologic and geomorphic processes that are capable of producing substantial ecosystem responses in the Sacramento and San Joaquin rivers and their tributaries. Much of the information below describes how these processes interact in a hypothetical “typical” river system. Although the resulting characterization may not accurately reflect actual interactions in the Sacramento and San

Joaquin rivers today, it provides a conceptual framework for understanding how these processes interact and for evaluating the extent to which they have been modified from historical conditions.

Similarly, the discussion focuses on stressors that have most affected hydrologic and geomorphic fluvial processes and ecosystem responses in the rivers of the Sacramento and San Joaquin valleys and that are affected by the operations and maintenance of the SPFC. Other stressors, such as historical hydraulic mining, urban and agricultural development, and global climate change, are acknowledged as past and likely future stressors, but they are not discussed in this report because they are not reasonably caused by or potentially affected by the O&M of the SPFC.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-87**

See response to comment G\_AR1-86. The discussion in Section 3.2 of the Status and Trends Report provides an overview of three ecologically significant categories of flows: floodplain inundation, bankfull flows, and base flows. The emphasis on these three flows does not imply that other flows (e.g., flows greater than base flow but less than bankfull) are ecologically insignificant. However, these three flows are generally regarded as more ecologically meaningful than other flows. Table 3-1 of the Status and Trends Report summarizes the effects of the three flow categories on geomorphic processes, ecosystem processes, and species in the riverine and riparian ecosystems.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-88**

See response to comment G\_AR1-86. Section 3.3, “Geomorphic Processes,” of the Status and Trends Report addresses the fundamental geomorphic processes of alluvial floodplain rivers, including channel migration, channel cutoff, channel anabranching, bed mobility, and fine and coarse sediment transport. All these processes influence floodplain formation and other floodplain dynamics. The SPA extends along the Sacramento River up to Shasta Dam; however, Section 3.3 of the Status and Trends Report focused on the middle reach of the Sacramento River

(RM 143 to RM 243), between Red Bluff and Colusa. The middle reach was emphasized for two reasons. First, it is the only segment of a major river in the Sacramento and San Joaquin valleys where channel dynamics are still regularly observed. Second, channel dynamics observed on the middle Sacramento River are also likely representative of other meandering alluvial river systems in the Sacramento and San Joaquin valleys. This does not imply that there are not potentially significant differences in channel dynamics between the middle Sacramento River and other rivers in the Sacramento Valley. However, the types of channel dynamics observed on this reach are considered to be most likely to be broadly representative of these processes on other rivers in the Sacramento Valley.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-89**

In the upcoming basin and regional planning processes, documents supporting proposed regional projects will be compiled as appropriate.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-90**

See response to comment G\_AR-89. This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-91**

The comments regard geomorphic effects. These comments do not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor do these comments specify additional information needed or particular insufficiencies in the DPEIR. The comments are noted.

**G\_AR1-92**

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor



does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-93**

Chapter 4, “Status, Trends, and Stressor Assessment,” of the Status and Trends Report considers the status and trends of Sacramento Valley and San Joaquin Valley hydrologic processes, geomorphic processes, and related habitats through a series of metrics calculated from readily available data. Each metric is described in a concise summary that identifies the rationale for selecting that metric to illustrate a particular process or habitat status, trend, or stressor; describes how the metric was developed and analyzed; and identifies the primary conclusion that can be drawn from each metric. The assessment relies heavily on graphical representations of each metric (e.g., charts or maps).

Although the approach used in Chapter 4 of the Status and Trends Report supports an initial analysis of more general patterns, the analysis has important limitations. In particular, median flows cannot be used to evaluate effects occurring on a finer time scale, such as individual daily flow effects on salmonids. Effects of specific flow management events, such as introduction of the Central Valley Project Improvement Act–mandated flows in 1992 and the flow management resulting from several biological opinions, were also not assessed.

The objectives in the PEIR are adequate for a program-level analysis under CEQA, and the more detailed “SMART” objectives requested by the commenter would not be feasible to develop at this time, particularly because of the substantial uncertainties faced by the program (i.e., funding). Developing more detailed objectives also would be premature because of the anticipated basin and regional planning processes, and associated public participation components.

**G\_AR1-94**

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-95**

Floodplain inundation flows provide native fish species access to floodplain habitat, where rates of predation by nonnative fish are lower and food production are higher than in the channel. Floodplain inundation particularly benefits outmigrating salmonids and spawning Sacramento splittail. Floodplain inundation also provides nutrients and seeds of riparian

species to the floodplain and provides water to floodplain habitats. The discharge, frequency, and duration of floodplain inundation flows were assessed because a reduction in these parameters resulting from a change in reservoir operations would represent a reduction in benefits to native species and habitats.

Hydrology metrics were calculated with the IHA software (Version 7.1.0.10), developed by The Nature Conservancy. IHA was used to query historic flow records to identify event-based metrics. IHA was used to compute the average annual peak discharge, frequency, and duration of small floods before and after reservoir construction at the two long-term flow gauges identified above. In IHA, a small flood is defined as a flow event with a peak flow greater than a pre-dam 2-year return interval flow rate and less than or equal to the pre-dam 10-year return interval flow rate. These small flood ranges were selected because these flows represent a range of floods (i.e., a 2- to 10-year recurrence interval) that inundated floodplains before the dams were constructed and that are thought to be positively related to a variety of ecosystem functions, such as the regeneration of riparian habitat and the provision of salmonid rearing habitat (see Section 3.4.2). Larger floods with a recurrence interval of greater than 10 years may also have ecosystem benefits, but they do not occur regularly enough to have the ecosystem benefit of more frequent floods.

For each year in which a small flood event occurred, IHA computed the maximum event-peak discharge. The average of these maximum peaks was then computed and plotted in Microsoft Excel to convey the change, before and after dam construction, on small-flood-event peak discharges. In addition, IHA records the number and median duration of small flood events per year. The number and average duration of the events were then computed and plotted on an annual basis in Microsoft Excel.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-96**

The comment regards mislabeled figures. This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-97**

Bankfull flows drive meandering and other related geomorphic processes (e.g., erosion and deposition of sediment) in the major rivers. Large woody material, which provides important habitat for native fish and invertebrate species, is generated by the erosive processes caused by these flows because they cause trees to fall into the channel. The discharge, frequency, and duration of bankfull flow were assessed because a reduction in these hydrologic parameters resulting from a change in reservoir operations would represent a reduction in the geomorphic process that generates large woody material and maintains habitat diversity.

IHA was used to compute the discharge, frequency, and duration of high pulse flows. In IHA, a high pulse flow is defined as a flow event greater than a pre-dam 1.5-year return interval flow rate and less than or equal to the pre-dam 2-year return interval flow rate. A 1.5- to 2-year recurrence interval flow is roughly equivalent to the hypothetical bankfull flow. Although dynamic channel processes have been observed on the Sacramento River at discharges much less than the presumed bankfull discharge, the bankfull discharge, because of its regularity and force, is assumed to be responsible for most of the force in the bed and channel. Thus, the bankfull discharge is strongly linked to sediment mobilization and transport and with the creation and maintenance of meandering streams, eroded banks, and point bar deposition. These physical changes to the stream can be positively associated with a variety of ecosystem functions (see Section 3.4.1).

As for small flood metrics, high pulse-flow metrics were computed and plotted using IHA and Microsoft Excel.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-98**

As explained in Section 4.1.2 of the Status and Trends Report, the metrics chosen to represent the status and trends of channel and floodplain dynamics are total river length, floodplain reworked (i.e., area that the channel moved through), and floodplain age. These metrics were computed previously for the middle reach of the Sacramento River (from RM 143 to RM 244) (Larsen 2010). Because of time constraints associated with preparing this information for inclusion in the 2012 CVFPP, these metrics were included from this previous report but were not calculated for other reaches of the Sacramento River, tributaries to the Sacramento River, or the

San Joaquin River system. It is anticipated that these metrics will be calculated for other rivers in the Sacramento and San Joaquin valleys as part of the 2017 CVFPP.

Total river length represents the amount of riverine and channel margin habitat available to native species. Changes in total river length were assessed to determine whether habitat for native species had changed as a result of a change in river planform. Total river length was calculated as the distance along the Sacramento River channel centerline from the Red Bluff Diversion Dam (RM 244) to the Colusa Bridge (RM 143). The total river length was calculated in GIS by measuring the centerline length of the river channel for eight periods between 1904 and 2007. Historic river centerlines were created by GIS analyses of aerial photographs and historic centerlines. Because the river tended to be located in different locations through time, a common starting and ending point was chosen for analysis. Channel segments that extended past these points were trimmed, resulting in a measure of river length reflective of sinuosity between a common starting and ending point.

The total length of river between a starting location and an ending location is a clear and obvious measure of the size of the river. For ecosystem processes related to the areal extent of a river channel, such as salmonid rearing habitat or floodplain interaction, and area of riparian habitat, a greater total length of river (given fixed end locations) will provide more area and therefore more ecosystem functions and processes. Total river length is by definition a large-scale metric that assesses the overall health of the river. This indicator was previously used as a metric of river health on the Willamette River in Oregon (IMST 2002).

A longer, and therefore more sinuous, river provides an ecosystem with greater habitat values (e.g., Brookes 1987; James and Henderson 2005). In alluvial river settings, a sinuous river has more cut banks and point bars than a straight river. It is also likely to be a more active river in terms of riverine processes of meander migration and erosion and sediment deposition, although such processes may be constrained by the presence of riprap on the riverbank. Because sinuous rivers have a greater complexity of habitats and ecological processes associated with them (e.g., Boano et al. 2006), they are more supportive of native species (e.g., bank swallows, salmon) and communities (e.g., cottonwood forests) (e.g., Jungwirth et al. 1993; Brunke and Gonser 1997).

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-99**

The metrics chosen to represent the status and trends of riparian and riverine habitat in Section 4.1.3 of the Status and Trends Report were (1) SRA cover length, (2) habitat distribution and extent, and (3) species distribution and abundance. SRA cover length is presented in tabular format (i.e., summarized by reach). Habitat and species distributions are presented spatially. Species abundance ideally would be presented as counts of representative species, but those data were not available.

Habitat distribution and extent were analyzed using the Central Valley Riparian Mapping Project GIS database prepared by California State University, Chico, and DFG. The data were developed for the CVFPP SPA to inventory riparian vegetation, wetlands, and other natural communities in the SPA. Land-use types were mapped to the broadest categories (i.e., agriculture and urban). The data were heads-up digitized at a scale of 1:2,000 using National Agricultural Inventory Program 2009 aerial imagery (USDA 2009). The minimum mapping unit for natural vegetation is 1 acre with an average width equal or greater to 33 feet for polygons mapped to the National Vegetation Classification System group level; provisional National Vegetation Classification System groups are as presented by Sawyer et al. (2009) and temporary provisional groups are as presented by Todd Keeler-Wolf (pers. comm., 2009).

For the production of the large-scale maps in the Status and Trends Report, natural vegetation types were combined into the following broad wetland and riparian habitat type categories: riparian forest, riparian scrub, freshwater permanent wetland, seasonal wetland, vernal pool complex, and alkali seasonal wetland complex. Acreages were calculated for each of these broad habitat types, and maps showing the distribution of these habitat types were created. To indicate the extent of change from historical conditions, the extent of riparian and perennial wetland vegetation from The Bay Institute's (1998) map of historical riparian and wetland vegetation of the Central Valley is also displayed on the maps.

Broad analytical information was presented in the main body of the Status and Trends Report, while more detailed mapping and calculations were contained in the appendices to the report.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-100**

See response to comment G\_AR1-99.

**G\_AR1-101**

See response to comment G\_AR1-99.

**G\_AR1-102**

See response to comment G\_AR1-99. Abundance data provided in the comment will be considered for future environmental review efforts, as appropriate. As flood management projects are selected and implemented in the post-plan adoption phase, additional analysis may be necessary, for which these data will be useful.

**G\_AR1-103**

The Status and Trends Report assesses the status and trends of hydrologic and geomorphic variables, habitats, and stressors of riparian and riverine ecosystems in the SPA. It also describes the effects of the flood control system on riparian and riverine ecosystems because elements of the system are stressors on these ecosystems. In the report, however, DWR recognizes that our understanding of riparian and riverine status and trends, and of the effect of flood control systems on them, is limited by gaps in our knowledge of historical and current conditions and by the limited extent of analyses conducted to date. Section 5.1 of the Status and Trends Report recommends additional data collection and analyses to increase the availability and analysis of data related to the hydrologic and geomorphic variables, habitats, and stressors assessed in this report and therefore increase our understanding of the riparian and riverine ecosystems in the SPA.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-104**

In Section 5.2 of the Status and Trends Report, Recommendation 14 is to develop conceptual models of the relationships between flood management and riparian and riverine ecosystem attributes in the SPA. DWR recognizes that our understanding and management of riparian and riverine ecosystems of the SPA is limited not only by gaps in the availability and analysis of relevant data, but also by the extent to which available data and analyses have been synthesized and communicated. Riparian and riverine ecosystems are complex, and the processes that sustain them are influenced

by many variables. Thus, identifying and communicating what is known about these relationships—and their relative importance—is challenging. Furthermore, to increase the conservation benefits of flood management, it is necessary to synthesize and communicate our understanding of relationships between components of the flood management system and riverine and riparian ecosystems. Conceptual models provide a framework for organizing information that can be useful in synthesizing and communicating the current understanding of ecosystems. These models, which can consist of diagrams, text, and tables, provide a formal description of relationships among factors affecting ecosystem processes, habitats, and species; they also serve to define the components of the ecosystem that are of interest.

For several reasons, conceptual models help to guide management actions related to improving ecosystem conditions. First, conceptual models are particularly effective for developing a shared understanding of an ecosystem, and as a communication tool among scientists, decision makers, and system managers. Second, the organization of information in a conceptual model may assist with identifying areas where our understanding and knowledge needs to be improved to better understand the interactions between management and ecosystems. Third, in addition to summarizing the current (conceptual) understanding of the system, a conceptual model can be a tool for integrating new knowledge into our understanding of the system as a whole, which may force the modification of relationships in the model. Development of conceptual models is therefore recommended for the 2017 CVFPP.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-105**

The comment provides language that the commenter suggests adding to Chapter 2 of the Status and Trends Report. This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The specific text change has been considered and is noted; however, no change to the CVFPP text was made.

**G\_AR1-106**

In Section 3.4.2 (page 3-9), the Status and Trends Report notes that overbank and other flood flows and floodplain inundation events “remove

existing vegetation and may create suitable conditions for the germination and recruitment of early successional vegetation, leading to increased habitat diversity and increased wildlife diversity,..." In Section 3.4.1 (page 3-8), the report notes that "[t]his diversity of riparian habitat patches created by meandering rivers and high flows, and sustained by adequate summer base flows, is critically important for a variety of wildlife and supports high levels of biodiversity."

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-107**

The comment suggests evaluating floodplain benefits for smelt and splittail, which may be included in future planning and project level processes, as appropriate. This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-108**

The SJRRP is generally described starting on page 2-15 of the Status and Trends Report. The report references that a legal settlement exists, and that Reclamation "is restoring a self-sustaining Chinook salmon population to the San Joaquin River between the Merced River and Friant Dam." The report does not attempt to describe further the legal settlement, nor does it describe the parties to the settlement. This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-109**

The Status and Trends Report contains a thorough discussion of fish passage barriers and stranding starting on page 3-19. This discussion includes mention of the role of fish hatcheries in the sustenance of the fall-run Chinook salmon population. Page 5-3 in Attachment 9C, "Fish Passage Assessment," lists factors that create fish passage barriers blocking habitat and stranding that contribute to the decline of Chinook salmon, steelhead, and green sturgeon populations, and DWR recognizes the role of "[c]ompetition from hatchery reared juveniles."



This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-110**

The discussion of stranding on page 7-7 of Attachment 9C, “Fish Passage Assessment,” notes that “[f]loodplain habitat carries the risk of stranding when water levels drop. Flood flows from the Sacramento River spill into the Yolo and Sutter bypasses and the Butte Overflow Basin. Sommer et al. (2005) described stranding rates on the Yolo Bypass floodplain as being relatively low. This finding is consistent with other studies that report juvenile salmonids are relatively mobile and that most avoid being stranded during moderate rates of stage change. However, other researchers reported that stranding occurs in scour holes, borrow pits, depressions, ponds, and sumps when flows recede within the Yolo Bypass, Butte Overflow Basin, and Sutter Bypass (Cannon, pers. comm., 2011; Schroyer, pers. comm., 2011; Navicky, pers. comm., 2011). For example, DFG rescued salmon, steelhead, and green sturgeon trapped in scour holes when floodflows receded in the Yolo Bypass in 2011 (Weiser 2011). While some studies indicate that the impact of floodplain stranding on juvenile salmon is low, other biologists indicate that stranding may have a more significant impact on fish than previously thought; the scale and level of stranding impacts are often undocumented and unknown.” This discussion clearly reflects the different features that can contribute to stranding.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-111**

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-112**

CVFPP Attachment 9C, “Fish Passage Assessment,” includes numerous references to the biological opinion on the long-term CVP and SWP operations. The aspects of the biological opinion that are described were determined by DWR to be those most relevant to fish passage with respect to the CVFPP. Those references do not attempt to provide a comprehensive

summary of the biological opinion or of fish passage elements contained therein.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-113**

There are numerous references to channel capacity improvements that are required in the San Joaquin River between Friant Dam and the Merced River that are necessary to support fish passage. In fact, Section 2.2.3, starting on page 2-5, describes an example fish passage project involving implementation of the SJRRP. On page 2-7, the Fish Passage Assessment notes that “[r]ecently, the SJRRP has performed work to identify fish passage barriers on the San Joaquin River from Friant Dam to the Merced River.” The CVFPP Fish Passage Assessment recognizes the numerous efforts being undertaken to improve fish passage in the San Joaquin River above the confluence of the Merced River. However, the CVFPP documentation does not attempt, nor is it required, to provide a detailed description of those activities such as might be found in the documentation of the SJRRP.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-114**

The recommended actions presented in Chapter 9 of the Fish Passage Assessment represent an identification of fish passage barriers in the CVFPP SPA and include an interim prioritization process to rank them. The interim ranking was conducted to meet the needs and scheduling of the 2012 CVFPP. The Forum, a statewide interagency collaboration, is developing a more robust and broadly supported ranking system, but that system is not ready for use at this time. Once that prioritization is complete, the barriers identified in this report should be re-ranked using the Forum’s prioritization method. This will ensure that barriers within the Flood System are addressed in a manner consistent with the rest of the state and should provide interagency buy-in for CVFPP fish passage actions.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor

does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-115**

As stated in Master Response 8, in accordance with legislative direction and reflecting stakeholder input, DWR prepared the 2012 CVFPP to describe the State's vision for flood management in the Central Valley. This vision for flood management in the Central Valley is for a sustainable flood management system that provides a high degree of public safety, promotes long-term economic stability, and supports restoration of compatible riverine and floodplain ecosystems.

In the CVFPP, DWR describes the SSIA, which is a proposal for achieving the State's vision for flood management. The SSIA helps achieve the State's vision for flood management in a balanced manner by promoting responsible investment of public funds, commensurate with flood risks, in projects that integrate multiple benefits, in proactive maintenance of SFPC facilities and residual risk management, and in wise management of floodplains protected by the SPFC. For additional details, see Master Response 8.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-116**

The Fish Passage Assessment includes a very general recommendation that as part of the CVFPP, the State act in a coordinated fashion with numerous fisheries habitat restoration programs being undertaken by State, federal, and other agencies and parties around the Central Valley. The document states that as part of this effort, "DWR should take steps to increase the extent, quality, and inundation of floodplain habitats through setback levees, and restoration and enhancement of existing floodplain habitats. Floodplains are critical components of aquatic ecosystems, and access to floodplain habitat increases fish productivity, abundance, and growth." The CVFPP is a proposal for achieving the State's vision for flood management, with recognition that multiple benefits can and should be achieved. The CVFPP documentation, however, is not an attempt to comprehensively document fisheries habitat improvement efforts around the Central Valley.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor

does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-117**

Both Attachment 9B, “Status and Trends of the Riparian and Riverine Ecosystems of the Systemwide Planning Area,” and Attachment 9D, “Improving Vegetation Data,” are part of the documentation of the CVFPP. Although internal cross referencing of the relevant data may be desirable to some, DWR does not believe that it is necessary to include data from one attachment in another attachment without creating substantial redundancy in an otherwise already voluminous documentation of the CVFPP.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-118**

The commenter suggests a specific wording change with respect to vegetation in the floodway. Placement of vegetation would be engineered to provide appropriate habitat while maintaining the flood conveyance capacity. This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The specific text change has been considered and is noted; however, no change to the CVFPP text was made.

**G\_AR1-119**

See response to comment G\_AR1-118. This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The specific text change has been considered and is noted; however, no change to the CVFPP text was made.

**G\_AR1-120**

The discussion of fine-scale mapping is included in Section 5.2 of Attachment 9D, “Improving Vegetation Data.” Although in some situations the color palette used in the GIS mapping can make it challenging to differentiate between habitat types, the suggested use of a numbering system in each polygon would be impractical given the size and scale of the mapping. The maps presented in Attachment 9D are only illustrative examples of fine- and medium-scale GIS maps that are available through DWR. The maps are readily understandable when viewed at the appropriate

size and scale rather than the illustrative examples contained in Attachment 9D.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-121**

The comment includes a cross reference to Section 2.3.2, 11. No response is required because there is no comment here on Attachment 9E, “Existing Conservation Objectives and Other Plans.”

**G\_AR1-122**

The purpose of Attachment 9F, “Floodplain Restoration Opportunity Analysis,” is to document an analysis of the potential for ecosystem restoration of floodplains within the SPA of the SPFC. The FROA in Attachment 9F assisted in the identification, development, and implementation of specific restoration actions. The FROA identifies areas with greater and/or more extensive potential opportunities for ecological restoration of floodplains. The FROA considered the physical suitability of these areas, as well as opportunities and constraints related to existing land cover and land uses, locations and physical condition of levees, locations of other major infrastructure, conservation status of land, and locations that stakeholders are interested in restoring.

The results of the FROA are intended to support the subsequent identification, prioritization, and further development of specific restoration opportunities. Through this subsequent planning, specific opportunities would be identified and prioritized on the basis of their potential ecological, flood management, and other benefits (e.g., reduced maintenance and regulatory compliance costs); cost; and regulatory, institutional, technological, and operational feasibility. This process for identifying and prioritizing opportunities would be part of both the continuing development of the overall CVFPP and the development of species-focused conservation planning and corridor management strategies.

Section 4.1, “Conclusions,” including Tables 4-1 and 4-2, documents the acres of floodplain that could be restored to habitat, the type of habitat, and the sensitive species that would be supported by that habitat.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-123**

See response to comment G\_AR1-122. This comment regarding other potential purposes of the FROA does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-124**

The comment states an alternative approach to identifying restoration opportunities. The FROA took a defined approach to identifying restoration opportunities within floodplain areas. The fact that alternative approaches may exist does not in any way invalidate the FROA approach. In the future, DWR may, at its discretion, refine the FROA approach described in this document to incorporate new or better information.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-125**

See response to comment G\_AR1-124.

**G\_AR1-126**

See response to comment G\_AR1-124.

**G\_AR1-127**

See response to comment G\_AR1-124.

**G\_AR1-128**

See response to comment G\_AR1-124.

**G\_AR1-129**

As stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)).

The SSIA includes the supporting goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project compensatory mitigation, and

(3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time. Under the SSIA, ecosystem restoration opportunities are integral parts of flood system improvements, including projects for urban areas, small communities, and rural-agricultural areas. Integrating ecosystem restoration into these flood protection projects will focus on preserving important SRA habitat along riverbanks and help restore the regional continuity/connectivity of such habitats. In addition, SSIA ecosystem restoration activities may include improving fish passage, increasing the extent of inundated floodplain habitat, creating opportunities to allow river meandering and other geomorphic processes, or other measures that may be identified during post-adoption activities. Potential effects on flood management and channel capacity will be considered during implementation of any ecosystem restoration actions. Post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, State and USACE permitting) will allow for detailed development and review of the conceptual ecosystem restoration targets described in the CVFPP and its attached Conservation Framework.

Appendix E, “2012 Central Valley Flood Protection Plan Conservation Framework,” provides a preview of a long-term Conservation Strategy that DWR is developing to support the 2017 CVFPP Update. The Conservation Framework focuses on promoting ecosystem functions and multi-benefit projects in the context of integrated flood management for near-term implementation actions and projects. The Conservation Framework provides an overview of the floodway ecosystem conditions and trends and key conservation goals that further clarify the CVFPP’s ecosystem goal.

For additional details, see Master Response 7.

**G\_AR1-130**

See response to comment G\_AR1-129.

**G\_AR1-131**

See response to comment G\_AR1-129.

**G\_AR1-132**

As stated in Master Response 8, the State Legislature enacted comprehensive flood risk management legislation in 2007, including the Central Valley Flood Protection Act of 2008. This law set a clear directive for an integrated systemwide approach to Central Valley flood management, and provided detailed guidance for DWR to follow in formulating the CVFPP. The Central Valley Flood Protection Act of 2008

specifically requires the CVFPP to provide significant systemwide benefits, evaluate both structural and nonstructural improvements, provide a description of the entire system and its current performance, promote multipurpose projects, and leverage other funding sources. These requirements for the CVFPP are embedded in SB 5 and codified in CWC Sections 9600–9625.

For additional details, see Master Response 8.

DWR does not have the mandate or discretion to extend the CVFPP beyond the legislatively established parameters.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

***G\_AR1-133***

The FIP analysis identifies areas of floodplain, both directly connected to the river and disconnected from the river (e.g., behind natural or built levees or other flow obstructions), that could be inundated by particular floodplain flows. The flows evaluated by the FROA included a spring flow sustained for at least 7 days and occurring in 2 out of 3 years (a 77 percent chance event), and 50 and 10 percent chance peak flows. This analysis adapted existing models and hydrologic data; thus, the FROA is limited to those reaches of the Sacramento and San Joaquin rivers and their tributaries for which such resources were available. Consequently, the FROA includes the Sacramento River from Woodson Bridge State Recreation Area to Collinsville, the San Joaquin River from Friant Dam to Stockton, the lower Feather River, and the lowermost reaches of other major tributaries of the Sacramento and San Joaquin rivers (i.e., the Bear, Yuba, American, Stanislaus, Tuolumne, and Merced rivers). It does not include smaller tributaries. The Sutter and Yolo bypasses are also included. The FIP adequately supports the programmatic analysis in the CVFPP, and the refinements to the inputs and methodology of the FIP suggested in the comment are not required. In the future, at its discretion, DWR may refine the FIP analysis to incorporate new or better information.

See response to comment G\_AR1-124.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.



**G\_AR1-134**

See response to comment G\_AR1-133.

**G\_AR1-135**

See response to comment G\_AR1-133.

**G\_AR1-136**

See response to comment G\_AR1-133.

**G\_AR1-137**

See response to comment G\_AR1-133.

**G\_AR1-138**

See response to comment G\_AR1-133

**G\_AR1-139**

See response to comment G\_AR1-133.

**G\_AR1-140**

See response to comment G\_AR1-133.

**G\_AR1-141**

See response to comment G\_AR1-133.

**G\_AR1-142**

The comment identifies a typographical error on page 1-1 in CVFPP Attachment 9F, "Floodplain Restoration Opportunity Analysis." The comment is noted and the error noted in this comment has been corrected as shown in Appendix B, "Central Valley Flood Protection Plan Errata."

**G\_AR1-143**

LiDAR flights must be done during periods of low vegetative cover and periods of relatively low flow. In this case, low flow is considered to be when little or no out-of-bank flow exists in the system. March 2008 was not considered a flood event period, so this time frame was considered appropriate for data collection.

An explanation of the reason that the flows in March 2008 represent a low-water base flow condition has been added to CVFPP Attachment 9F as shown in Appendix B, "Central Valley Flood Protection Plan Errata."

**G\_AR1-144**

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-145**

The CalSim model is a planning simulation model of the CVP and SWP systems that uses a monthly time step. The monthly CalSim output data are given as a volume and reflect the system's anticipated reaction and the resulting flows from the input constraints used in a specific simulation. The results are designed specifically to reflect the anticipated future conditions that will impact the ecosystem.

Temporal disaggregation of the monthly CalSim data to daily data was required for the FIP analysis. This disaggregation was accomplished by matching each CalSim monthly output to a historical month, with the most similar monthly flow volume based on the same calendar month as the CalSim flow in question. The historical data were used to develop a unique daily flow pattern. The flows at the beginning and end of each month were interpolated with the flows at the beginning and end of the preceding and following months to smooth the transition between months.

**G\_AR1-146**

The comment identifies an incorrect reference to Section 2.2.9. This has been corrected to read Appendix A, Section 2.9, as shown in Appendix B, "Central Valley Flood Protection Plan Errata."

DWR believes that the phrase "LiDAR FIP  $\leq$  1 foot" is described adequately in the notes at the bottom of the tables.

**G\_AR1-147**

The comment notes that no report exists about a 67 percent chance FIP for Feather River—Bear River to Sutter Bypass. This has been corrected by adding the sentence, "Less than one percent of the corridor along this reach has 67 percent chance Sustained Spring FIP," as shown in Appendix B, "Central Valley Flood Protection Plan Errata."

**G\_AR1-148**

The phrase "extending 1 mile from each river bank" in Note 1 for Table 3-1 through Table 3-12 has been changed to "extending 1 mile from the centerline," as shown in Appendix B, "Central Valley Flood Protection Plan Errata."

**G\_AR1-149**

Note 6 for Table 3-2 of the CVFPP has been changed as shown in Appendix B, “Central Valley Flood Protection Plan Errata.”

**G\_AR1-150**

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-151**

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-152**

A custom model was developed using ArcGIS Model Builder to calculate HAR. The model uses the Spatial Analyst extension’s kernel density function to calculate a distance-weighted average of river elevations, where cells in the river that were nearer to the upland grid cells received a greater weight than cells located farther away. The weighted-average river elevation was then subtracted from the elevation of individual grid cells to derive HAR for each location. The comment is noted, but no changes have been made.

**G\_AR1-153**

The range of flows cited for the CVFED LiDAR data collection period in March 2008 was taken from the USGS Feather River at Oroville, California, gauge.

**G\_AR1-154**

The comment requests information on the location of flow measurement for flows cited. The stated flows are for the pilot study reach, from the Yuba River to the Bear River. The comment is noted.

**G\_AR1-155**

The comment questions the water surface elevation difference between the 2-year flood and the LiDAR flows. The difference between the LiDAR flows and the 50 percent chance flows is nearly 80,000 cfs. Therefore, a 20-foot difference in stage is certainly reasonable.

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-156**

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-157**

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

The steady-state model was developed previously and used for a pilot study. It was changed to an unsteady state so that it would be possible to run the flow hydrographs.

**G\_AR1-158**

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

The comment questions why this specific hydrograph was selected, and then it answers the question by referencing text on page A3-6, where it says, “The resulting flows may provide a better representation of expected future flows than historical flows.”

**G\_AR1-159**

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-160**

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-161**

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-162**

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-163**

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

The validity discussed on page A3-28 is only concerned about the assumption of flat water surface throughout the HAA. Many HAAs exist, and if the assumption is not valid for some of them, it is not likely to change the results significantly.

**G\_AR1-164**

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

The comment is correct that it would be necessary to analyze the potential habitat connectivity for proposed setback levees for a proposed project. At such a time, the best available tools would be brought to bear in the analysis.

**G\_AR1-165**

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

As stated in Appendix A, “The purpose of this pilot study was to understand the methods and approaches required for the HEC-RAS and HEC-EFM analysis and to identify any issues with or alternative

approaches to the analysis. The intent of this study was not to develop a final restoration opportunities analysis for the lower Feather River.”

**G\_AR1-166**

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-167**

This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

The LiDAR DEM data were collected in March 2008, and the USGS DEM was digitized from the topographic data in the USGS quadrangle for the area.

**G\_AR1-168**

The commenter states that CVFPP Attachment 9G, “Regional Permitting Options,” was not reviewed. No response is required because there is no comment on the attachment.

**G\_AR1-169**

The comment provides extensive list of example multiple-objective flood management projects, some of which are included in the SSIA. Others may be considered during the basin and regional planning processes. This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-170**

The comment states views on economic prosperity and flood management in the Central Valley, which suggest a six-point program that is generally consistent with the objectives of the CVFPP. This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_AR1-171**

The comment expresses views on expanded floodways and bypasses, which reflect benefits that are recognized by DWR in the CVFPP. This comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.



April 20, 2012

**Central Valley Flood Protection Board**

**Care of: Ms. Nancy Moricz**

Central Valley Flood Protection Board

3310 El Camino Avenue, Room 151

Sacramento, CA 95821

Members of Central Valley Flood Protection Board,

G\_BCFB1-01

Thank you for the opportunity to comment the Central Valley Flood Protection Plan (CVFPP), as well as the Draft Program Environmental Impact Report. The following remarks should be considered on BOTH the DPEIR AND the 2012 Draft Central Valley Flood Protection Plan.

Recently, the Butte County Farm Bureau Board of Directors, on behalf of more than 1,600 paid member families of the Butte County Farm Bureau (BCFB), voted UNANIMOUSLY to OPPOSE the 2012 Draft Central Valley Flood Protection Plan.

During a March 28<sup>th</sup> evening meeting in Richvale, CA, the CVFPP and the DPEIR were discussed by Department of Water Resources (DWR) staff with local farmers, homeowners, landowners, taxpayers, and Butte County Farm Bureau members. Upon considering the CVFPP, the DPEIR, and DWR comments at the meeting, many impacts and concerns were left unaddressed to the satisfaction of the BCFB. They include the following:

1. Impacts to local farms & ranches
  - a. The plan proposes to change the operation and maintenance of current flood control facilities and structures while adding additional structures, all of which will have a significant impact on adjacent lands. The loss of many tens of thousands of acres of private, productive farmland, whether through easements or title transfer, is of great concern, and should be avoided by the plan entirely. Instead, the scope of current flood control facilities should be maintained, and restored to their original intent and planned capacity of quickly moving water away from farmlands and through the system.
2. The flood control system should not be used as habitat.

G\_BCFB1-02



a. Additional acres of habitat through construction or creation of “setback levees” acquired from productive farm lands should not be considered by the plan. As is seen already, many of these habit lands adjacent to flood control areas or structures lack a specific management plan which is beneficial for neighboring agriculture. Additionally, this habitat can create problems for swiftly moving increased water flows through the system, and create additional expense for maintaining the levees or structures, or prevent it entirely.

G\_BCFB1-03

3. Cherokee Canal/Feather River Bypass should be dropped from the plan.

a. This project should be eliminated from any further planning or consideration. As discussed throughout the plan, as well as DWR findings in Attachment 8J of the CVFPP, the plan addresses new acreage acquisition as part of construction and repair of new levees along the Cherokee Canal, at great expense.

G\_BCFB1-04

4. Maintenance of New or Enhanced Structures is of great concern.

a. Landowners and farmers adjacent to new or enhanced levees or structures could be faced with a significantly increased property tax burden to maintain the structures after construction or modification. This burden should not be disproportionately placed on shoulders of the family farmers & landowners.

G\_BCFB1-05

5. Impacts to Agriculture & Affiliated Industries & Local Tax Base

a. As was noted at the meeting in Richvale, losses to Agriculture were not considered by the CVFPP or the DPEIR. Before adoption of any component of the plan, financial impacts to agriculture and affiliated industries, as well as loss of local tax revenue should be considered and addressed. Additionally, the identification by the CVFPP of areas which could be considered for acquiring new habitat or farmland through easements or title transfer can potentially depress property values, and disrupt financial planning by the property owners. This too should be addressed by any plan prior to adoption.

Thank you for considering our comments about the CVFPP and the DPEIR. Again, the Butte County Farm Bureau wishes to go on record as opposing the plan in general, and would highlight our opposition to any new Feather River Bypass using the Cherokee Canal area.

Kind Regards,

Butte County Farm Bureau

## **Butte County Farm Bureau**

### ***Response***

#### ***G\_BCFB1-01***

As stated in Master Response 8, construction of the Central Valley's flood facilities was originally driven by the need to defend the developing valley floor against periodic floods while maintaining navigable channels for commerce. Over time, some facilities have become obsolete or have nearly exceeded their expected service lives, and they are in need of major modification or repair. Further, facilities originally constructed primarily for navigation, sediment transport, and flood management are now also recognized as important for water supply conveyance, ecosystem functions, recreation, and other beneficial uses.

Today, the SPFC must contend with a lack of stable funding and with concerns like deferred maintenance, changes to regulations and societal priorities, dated construction techniques, and imprudent development in deep floodplains, leaving almost a million people at risk.

In response to these realities, the State Legislature enacted comprehensive flood risk management legislation in 2007, including the Central Valley Flood Protection Act of 2008. This law set a clear directive for an integrated systemwide approach to Central Valley flood management, and provided detailed guidance for DWR to follow in formulating the CVFPP.

DWR prepared the 2012 CVFPP to describe the State's vision for flood management in the Central Valley. This vision is for a sustainable flood management system that provides a high degree of public safety, promotes long-term economic stability, and supports restoration of compatible riverine and floodplain ecosystems.

#### ***G\_BCDB1-02***

As stated in response to comment G\_BCDB1-01, legislation is directing the development of the CVFPP to provide improvements to public safety and wherever feasible, meet multipurpose objectives including promoting long-term economic stability and ecosystem function. In addition, as stated in Master Response 1, improvements to ecosystem functions and continuity may contribute to mitigation for proposed structural improvements as well as mitigation for impacts of O&M of flood management facilities. Therefore, the inclusion of ecosystem improvements not only serves to offset impacts of flood management facilities O&M, but is supported as a component of the CVFPP by the State Legislature.

**G\_BCFB1-03**

As stated in Master Response 1, expansion of the Sutter, Yolo, and Sacramento bypasses was identified as an example of increasing the overall capacity of the flood management system to convey and attenuate large flood events. Peak flood stages could be reduced along the Sacramento River, and to a lesser extent, along its tributaries. Lowering flood stages throughout much of the system would benefit urban, small-community, and rural-agricultural areas alike. Constructing new bypasses, such as constructing a bypass from the upper Feather River to the Butte Basin and expanding Paradise Cut from the San Joaquin River into the south Delta, would further contribute to reducing peak flood stage along reaches of the Feather River and lower San Joaquin River.

Specific dimensions, capacities, and alignments for expanded and new bypasses have not been determined as part of the preliminary analyses conducted for the CVFPP. The analyses in the CVFPP are intended to be conceptual only; they were included as a basis for a program-level analysis.

Considerable additional work will be required before the bypass projects proposed in the program are approved and implemented. Details about the dimensions, capacities, and alignments of expanded and new bypasses will be refined during post-adoption implementation activities.

**G\_BCFB1-04**

As stated in Master Response 15, flood management projects are typically cost-shared among federal, State, and local government agencies. Under existing federal law, the federal cost-share for construction may be 50–65 percent of the total project cost, depending on the amount of lands, easements, rights-of-way, and relocations necessary for the project. In recent years, many federally authorized projects and studies have not been adequately funded by the federal government.

Under State law, the State cost-share for federal flood projects is currently between 50 and 70 percent of the nonfederal share of the project costs, depending on the project's contributions to multiple objectives. After the passage of Proposition 84 and Proposition 1E, DWR developed interim cost-sharing guidelines for flood projects where the federal government is not currently sharing in the project costs. The State cost-share under these guidelines may range from 50 to 90 percent, depending on the project's contribution to multiple objectives and the degree to which the local area may be economically disadvantaged.

The local share would likely depend on the flood management benefits to be accrued with implementation of flood management system

improvements. This share cannot be determined until site-specific improvements are identified and their costs allocated among beneficiaries.

Finally, as stated in Master Response 3, DWR has developed cost-sharing guidelines to promote multiobjective projects and to provide additional financial support for economically disadvantaged areas ([http://www.water.ca.gov/floodsafe/docs/Cost\\_Sharing\\_Formula\\_12-29-10\\_Final.pdf](http://www.water.ca.gov/floodsafe/docs/Cost_Sharing_Formula_12-29-10_Final.pdf)).

#### ***G\_BCFB1-05***

The loss of agricultural land because of the implementation of CVFPP flood management facility improvements has been considered and acknowledged. As stated in Master Response 2, preliminary planning-level analyses indicate that actions outlined in the SSIA (expansion of the bypass system; new bypasses; and levee reconstruction, including levee setbacks) could expand flood system lands by as much as 40,000 acres. However, this initial estimate will be refined during follow-on studies and further analysis conducted after adoption of the CVFPP. The exact amount and geographical distribution of this acreage will require further analyses as future specific projects are considered and evaluated.

It has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. However, these preliminary planning estimates will be refined during subsequent project-level analyses. The actual needs for and uses of land will vary depending on the types and locations of specific flood system improvements.

As stated in Master Response 14, DWR and the Board will continue to work collaboratively with local, State, and federal agencies, environmental interests, and other parties to develop regional flood management plans and further refine the proposed elements of the SSIA as part of post-adoption activities.

# G\_BCRGA1

**Moricz, Nancy**

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**From:** choff@bucra.com  
**Sent:** Thursday, February 23, 2012 5:11 PM  
**To:** Cvfpp\_Comments  
**Subject:** Comments on the Central Valley Flood Protection Plan

Carl Hoff  
President  
Butte County Rice Growers Association  
PO Box 128  
Richvale, CA 95974-0128

February 23, 2012

Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento, CA 95821

Dear Central Valley Flood Protection Board:

February 23, 2012

I am writing regarding the State of California's Draft Central Valley Flood Protection Plan.

I have just recently become aware of the State's draft plan for flood protection in the Central Valley. As a Central Valley agricultural stakeholder, I am concerned that the proposal plans to expose an additional 40,000 acres of prime agricultural land to periodic flooding by widening levees. This plan does not address the existing system by ensuring proper maintenance of the floodways that we currently have.

Speaking specifically to our region in South Butte County, there is currently a plan to create a NEW bypass, called the Feather River Bypass.

This plan would be to widen the Cherokee Canal by building additional levees to handle up to 32,000 cfs of flows. This proposal has not had input by any of the local stakeholders, which include water districts, landowners, the Rice Experiment Station, and other businesses such as ourself, which has a fertilizer plant within a mile of the Canal.

Speaking specifically of the Cherokee Canal, it was originally built for flood control. However, over the years, due to inadequate maintenance and sediment buildup, this "flood channel" has become overgrown with trees, bushes and weeds. Now it has been deemed to be riparian habitat, which further restricts the state agencies on when and how they can maintain the channel. Our concern will be that adding additional capacity through the region by widening the existing canal will only trade a small problem for a larger one.

A viable agricultural industry is essential to the State's economy, particularly to the rural areas within the Central Valley. The future of rural communities and the viability of agriculture in the Central Valley is, in turn, dependent upon the State's ability to plan a resilient flood protection system that is compatible with and supportive of Central Valley agriculture.

Private property rights are also at stake. The proposed plan would dislocate people, homes, multi-generational family farming operations, and established businesses, representing decades of hard work and investment, without the means to fully compensate such loss, and no clear or adequate transition plan.

G\_BCRGA1-01

G\_BCRGA1-02

G\_BCRGA1-03

G\_BCRGA1-04

G\_BCRGA1-05

While representatives from the California Department of Water Resources have suggested that more extensive outreach to local agencies, farmers, and landowners will occur in the "regional planning" and "feasibility study" and "project implementation" phases of the Plan, it is a serious concern for Central Valley agricultural stakeholders that the major features of the Plan have been already selected with little or no attempt on the part of the State to involve affected local interests. As of today, most affected farmers, landowners, and local interests remain wholly uninformed of the State's proposed Plan.

As a Central Valley agricultural stakeholder, we are calling on the State of California to reach out to local governments, rural communities, farmers, and landowners to ensure local issues and concerns are fully understood, taken into account, and addressed.

Thank you for the opportunity to comment.

Sincerely,

Carl Hoff  
5308824261  
President  
Butte County Rice Growers Association

**Butte County Rice Growers Association, Carl Hoff**

***Response***

***G\_BCRGA1-01***

As stated in Master Response 2, improving O&M is a supporting goal of the CVFPP. The SSIA includes elements to address and improve O&M at existing facilities as part of residual risk management. These elements include identifying and repairing after-event erosion, developing and implementing enhanced O&M programs and practices, and forming regional O&M organizations and sustained investments in flood system maintenance (management of the Sacramento River channel and levees, bank protection, and rehabilitation of flood structures).

However, as concluded in Master Response 6, DWR recognizes the importance of proper maintenance to protect State, local, and federal investments in the flood management system. However, maintenance activities alone do not meet current needs or legislative requirements for the CVFPP (e.g., urban level of protection, systemwide approach, and providing multiple benefits). This is highlighted in the evaluation conducted for the preliminary approach called “Achieve SPFC Design Flow Capacity.”

***G\_BCRGA1-02***

As stated in Master Response 1, specific dimensions, capacities, and alignments for expanded and new bypasses have not been determined as part of the preliminary analyses conducted for the 2012 CVFPP. The analyses contained in the 2012 CVFPP are intended to be conceptual only; they were included as a basis for a program-level analysis.

Considerable additional work will be required before the bypass projects proposed in the plan are approved and implemented. Details about the dimensions, capacities, and alignments of expanded and new bypasses will be refined during post-adoption implementation activities.

***G\_BCRGA1-03***

DWR recognizes the importance of proper maintenance to protect State, local, and federal investments in the flood management system. As stated in Master Response 1, the CVFPP’s recommended approach—the SSIA—includes proposals for new bypasses and expansions as a potentially cost-effective, systemwide approach to (1) provide flood protection benefits to large areas throughout the SPFC planning area (including rural-agricultural areas, small communities, and urban areas); (2) provide opportunities to improve ecosystem functions and continuity and contribute to mitigation

for proposed structural improvements, as well as mitigation for operations and maintenance of flood management facilities; and (3) provide flexibility to adapt to future change in climate and improved system resiliency.

With this approach, the new flood management facilities would be designed for multiple purposes, including the passage of flood flows and improving ecosystem values.

#### ***G\_BCRGA1-04***

As stated in Master Response 3, the SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises. Implementing the SSIA would increase the percentage of the population receiving at least 100-year (1 percent annual chance) flood protection from the current 21 percent to more than 90 percent (CVFPP, page 3-40). The remaining 10 percent of the population would receive benefits through residual risk management actions. Based on initial planning-level cost estimates developed to evaluate elements of various scenarios considered under the 2012 CVFPP, more than 20 percent of total SSIA investments would support rural-agricultural and small community improvements, and residual risk management. In addition, systemwide elements (which account for almost 40 percent of total SSIA investments) are anticipated to provide flood stage reduction benefits to many of the areas in the system, including small communities and rural-agricultural areas.

In addition, the PEIR prepared for the CVFPP includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) on pages 3.3-34 and 3.3-35 of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed.

#### ***G\_BCRGA1-05***

As stated in Master Response 2, the conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning,



development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified. The CVFPP states the preference to work with willing landowners for needed land acquisitions. All land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable.

***G\_BCRGA1-06***

As stated in Master Response 13, a multiphase public engagement planning process informed development of the 2012 CVFPP and provided many different venues for communicating and engaging with a broad range of partners and interested parties. This extensive public engagement process for plan development, which began in January 2009, involved about 450 people representing public agencies, businesses, interest-based organizations, and members of the public. The process included nearly 300 meetings and more than 40 publications, in addition to development of a public Web site and webinars. A full list of participants and forms of engagement in plan development are available in Attachment 5, “Engagement Record,” in Appendix A, “Central Valley Flood Protection Plan.” The participants in the engagement process assisted DWR in identifying problems, developing CVFPP goals, identifying the range of management actions to consider in the CVFPP, and reviewing and commenting on the draft content of the CVFPP.

**Engagement Specifics:**

Phase 1 of the public engagement planning process focused on identifying problems and needs and crafting specific goals for the CVFPP. A variety of regional and topic-based work groups formed during this phase. Phase 2 focused on identifying individual actions that could be taken to achieve the CVFPP goals, and engaged stakeholders through continued regional and topic-based work groups and public workshops.

After Phase 2, stakeholders indicated that they preferred to review more developed materials and information before continuing with intense working meetings. With that understanding, DWR focused its efforts on content development (considering previously provided input and ongoing

analyses) and developed a cohesive working draft document for stakeholder review in fall 2011. Outreach efforts included e-mail communications and updates, workshops, webinar briefings, and meetings with individuals and agencies. Work group members were also given an opportunity to review and comment on a working draft of the CVFPP. However, with a commitment to complete a public draft CVFPP within the legislated time frame, the degree of engagement provided in Phases 1 and 2 was not feasible for Phases 3 and 4.

The Board provided various opportunities for members of the public and agencies to comment on the public draft CVFPP, released in December 2011. Hearings were held in 2012 on April 5 (Sacramento), April 6 (Marysville), April 9 (Stockton), and April 11 (Woodland), and public comments were heard and discussed at both regular and special Board meetings. DWR also accepted comments on the DPEIR, which was released in early March 2012. More information on the Board's process for public review and plan adoption can be found on its Web site, <http://www.cvpfb.ca.gov>.

Anticipated activities after adoption of the 2012 CVFPP include regional flood management planning, development of basin-wide feasibility studies, and completion of project-level proposals and environmental compliance. These efforts will engage local entities and stakeholders to help identify projects to meet local and regional needs for flood management, refine the conceptual system elements proposed in the adopted plan, and identify specific projects for construction.

As part of regional flood management planning, regional plans will be prepared with active participation by regional implementing, operating, and maintaining agencies; local land use agencies (counties and cities); agricultural and environmental interests; emergency responders; and tribes. This effort will collect on-the-ground information regarding flood risks and needs, identify local and regional improvement projects, assess the performance and feasibility of these projects, and develop plans that reflect the priorities of local entities in reducing flood risks in each of the nine regions identified in the CVFPP. Each plan will also assess proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. Development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts.

Two basin-wide feasibility studies will be prepared, one in the Sacramento River Basin and one in the San Joaquin River Basin, to refine the major system elements proposed in the 2012 CVFPP (such as bypass expansion

and new bypasses) and assess their compatibility with prioritized local projects identified through regional flood management planning. These combinations of system element options and regional elements will form “alternatives” for further evaluation and comparison on a systemwide scale. Stakeholder engagement will be an important and complex component of the basin-wide feasibility studies. It is anticipated that work groups will form to help evaluate and refine physical options for system elements (e.g., bypass expansion and new bypasses), identify implementation challenges, and provide input into the planning process. The feasibility studies will be conducted in close coordination with USACE (and ongoing federal feasibility studies) and local implementing agencies.

The regional and basin-wide feasibility planning efforts will help identify specific improvement projects for design and environmental review. Stakeholders and the public will have additional opportunities to provide input. The draft feasibility reports and any accompanying environmental documentation will be made available to the public for review and comments.



Butte County Rice Growers Association

P.O. Box 128  
Richvale, CA 95974  
(530) 882-4261

April 5, 2012

**G\_BCRGA2**

Central Valley Flood Protection Board  
3310 El Camino Ave  
Room 151  
Sacramento, CA 95821

Re: CVFPP Proposed Plan

G\_BCRGA2-01

Dear Members of the Central Valley Flood Protection Board:

We are writing regarding the State of California's Draft Central Valley Flood Protection Plan. We have the following concerns regarding the plan and its impact to agriculture in our region.

As a Sacramento Valley agricultural stakeholder, we are concerned that agriculture is being subjected to new losses of land due to "Urban" build out in flood plains over which we had no control, but we now have to "sacrifice" land in the way of new or expanded bypasses to channel water away from these "Urban" areas. In your own document, you mention that agriculture will sustain an estimated 25% farming loss in bypass expansion areas.

G\_BCRGA2-02

Speaking specifically to our region in South Butte County, there is currently a plan to create a NEW bypass, called the Feather River Bypass. This new bypass concept was not discussed with local stakeholders during the planning process. This plan would widen the Cherokee Canal by building additional levees to handle up to 32,000 cfs of flows (*source: 2012 CVFPP page 2-12*). We do not believe the concept to transfer water from the east side of the valley to the west side is a common sense approach to this problem. This will impact productive Ag land, and endanger key assets to the rice industry that operate within close proximity to the Cherokee Canal, namely:

- The Rice Experiment Station, which is the research and development arm for a \$2.0 billion industry, resides within ¼ mile of the Canal.
- The Butte County Rice Growers Association has a Fertilizer plant and a Rice Drying and Storage facility within ½ mile of the Canal.
- Lundberg Family Farms has a Rice Drying and Storage facility within ½ mile of the Canal.
- The Richvale Irrigation District has siphons running underneath the Canal, which would require retrofitting and expanding with changes to the existing size of the Canal.

Speaking specifically of the Cherokee Canal, it was originally built for flood control. However, over the years, due to inadequate maintenance and sediment buildup, this "flood channel" has

become overgrown with trees, bushes and weeds. Now it has been deemed to be riparian habitat, which further restricts the state agencies on when, where and how they can maintain the channel. Environmental law has changed over time since this channel was built, and now regulations such as the Endangered Species Act severely limit the ability of flood maintainers to keep the channel clear.

Our concern will be that increasing capacity through the region by widening the existing canal will only trade a small problem for a larger one. What safeguards will the Central Valley Flood Control Board receive from the Federal and State Dept. of Fish and Game and the Dept. of Fish and Wildlife on the ability to maintain channel capacity? Nothing we have seen over the past 30 years has given us confidence that safeguards can be maintained. In addition, budget cuts at the state level have left current maintenance efforts severely impacted. We believe that any new plan must have the funding designated in perpetuity to ensure maintenance efforts for channel clearance is fully funded

G\_BCRGA2-03

The CVFPP document states that adding bypasses would aid in providing habitat for various species. We believe that rice ground in production clearly provides habitat that is eco-friendly and yet still provides tax revenue to the State. Studies have been done and endangered species such as the giant garter snake have continued to thrive in rice production areas, whereas in Urban areas its population has declined.

G\_BCRGA2-04

This “new bypass would have the potential to reduce flood stages by as much as one foot in Yuba City and Marysville during a 100-year (1% annual chance) flood” (*source: 2012 CVFPP page 3-15*). We believe a more cost-effective approach would be to add a foot of elevation to existing levees rather than to take existing productive farmland out of service, thereby reducing tax revenue to the State and local counties. Adding additional height to levees would have to be system-wide, to ensure no other areas would be impacted.

G\_BCRGA2-05

The second major concern that I would like to comment on is in the area of new flood storage. In the proposed plan, Section 3.5.4 states:

“Preliminary system-wide analyses have identified potential benefits and opportunities for reservoir flood storage and operational changes for flood management in the Sacramento River and San Joaquin river basins. Flood storage may reduce the need for some types of downstream actions, such as levee improvements, and can offset the hydraulic effects of system improvement on downstream reaches. *Additional flood storage can provide greater flexibility* in accommodating future hydrologic changes, including climate change, and provide greater system resiliency (similar to that provided by freeboard on levees) in the face of changing downstream conditions.”

Also, on page 1-16, the effects of climate change is discussed, and the document states:

“In addition, as the moderating effect of snowpack on runoff decrease, there will be a *need* for more water supply storage, putting greater pressure on California’s multipurpose flood control reservoirs.”

However, given the stated benefits above of additional storage, the document does not recommend additional surface water storage except for the Folsom Dam Raise, which is already authorized. The document states “During future feasibility studies, the State may consider

partnering with other willing agencies on expanding existing reservoir storage" (source: 2012 CVFPP page 3-16).

With the Statewide System Investment Approach estimated to cost between \$13.92 billion and \$16.91 billion (source: 2012 CVFPP Table 3-5), why shouldn't some of that money be allocated to the building or expanding of additional reservoirs to capture flood runoff for later use? This would have a synergistic benefit as follows:

- Reliable supply of water for Agriculture which in turn provides stable tax revenue to State and local agencies (avoiding routine state water system cuts)
- Aid the Environment (use this banked water to assist in enhancing the ecosystem in the Delta)
- Increase flood protection without taking additional productive Ag land that contributes to the tax base

A perfect example is the proposed Sites Reservoir. With the building of a Sites Reservoir (estimated cost \$2.3 - \$3.2 billion), you would be able to siphon off water from the Sacramento River prior to and during peak flood events, thereby relieving downstream levee pressures. The California Department of Water Resources own website clearly state the benefits:

- Enhanced water supply reliability for urban, agricultural, and environmental uses
- Improved Delta water quality
- Mitigation of snowpack storage losses due to climate change
- Contribute to flood damage reduction in the Central Valley
- Ecosystem restoration actions in the Sacramento River
- Dedicated storage that can be adaptively managed to respond to Delta emergencies and help with restoration actions

We believe that adding to the document new reservoir storage would have more long-term benefit to the State than adding new bypasses, and would meet co-equal goals of flood protection and enhanced water supply reliability for urban, agricultural, and environmental uses.

G\_BCRGA2-06

In Summary, we believe that creating a new bypass using the Cherokee Canal is not the most cost-effective approach to flood control. We believe improving levees in the urban areas of Yuba City and Marysville is the right approach, thereby keeping the Feather River Watershed in its normal flow pattern. This would alleviate the issue of obtaining safeguards from the Depts. of Fish and Game/Fish and Wildlife on maintaining channel capacity with a new bypass. Lastly, new reservoir storage should be a key part to any flood plan, as reservoirs have been key to mitigating large flood events, and Sites Reservoir is a perfect candidate based upon DWR's own analysis.

Thank you for the opportunity to comment.

Sincerely,



Carl D. Hoff

President/CEO

Butte County Rice Growers Association

**Butte County Rice Growers Association, Carl D. Hoff**

***Response***

***G\_BCRGA2-01***

As stated in Master Response 2, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. However, these preliminary planning estimates will be refined during subsequent project-level analyses.

As stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)).

The supplemental ecosystem benefits affecting about 25 percent of the lands fall under this legislative direction. The multiple benefits supported by the Act are described in greater detail in Master Response 7.

***G\_BCRGA2-02***

DWR recognizes the importance of proper maintenance to protect State, local, and federal investments in the flood management system. As stated in Master Response 1, the CVFPP's recommended approach—the SSIA—includes proposals for new bypasses and expansions as a potentially cost-effective, systemwide approach to (1) provide flood protection benefits to large areas throughout the SPFC planning area (including rural-agricultural areas, small communities, and urban areas); (2) provide opportunities to improve ecosystem functions and continuity and contribute to mitigation for proposed structural improvements, as well as mitigation for operations and maintenance of flood management facilities; and (3) provide flexibility to adapt to future change in climate and improved system resiliency.

With this approach, the new flood management facilities would be designed for multiple purposes, including the passage of flood flows and improving ecosystem values.

As stated in Master Response 15, up to \$1.7 billion of additional bond funding will be available during the next 5 years for CVFPP-related projects. Use of bond funds will be prioritized based on the severity of flood risks, considering proposed project costs and benefits and contributions to basin-wide solutions (consistent with the CVFPP). The current available bond funding is insufficient to implement the entirety of

the recommended SSIA. After the Board adopts the CVFPP, DWR will create a financing plan for potential legislative actions to fund the next increment of capital improvements, O&M, and residual risk management activities for the CVFPP.

***G\_BCRGA2-03***

The comment is noted. In addition to habitat provided by rice production areas, other habitat types could be established as part of the CVFPP, including riparian forest. Other habitat types would be capable of supporting a suite of other species beyond that supported by rice production areas.

***G\_BCRGA2-04***

As stated in Master Response 1, SB 5 requires DWR to evaluate ways to “...expand the capacity of the flood protection system in the Sacramento–San Joaquin Valley to either reduce floodflows or convey flood waters away from urban areas” (CWC, Section 9616(a)(2)). Bypasses have served an essential role in providing these functions.

The CVFPP’s recommended approach—the SSIA—includes proposals for new bypasses and expansions as a potentially cost-effective, systemwide approach to (1) provide flood protection benefits to large areas throughout the SPFC planning area (including rural-agricultural areas, small communities, and urban areas); (2) provide opportunities to improve ecosystem functions and continuity and contribute to mitigation for proposed structural improvements, as well as mitigation for operations and maintenance of flood management facilities; and (3) provide flexibility to adapt to future change in climate and improved system resiliency

Raising levee heights throughout the Central Valley would not achieve the objectives required by SB 5, nor would the long-term reliability of this proposal be assured. The SSIA is intended to meet the multiple objectives required by SB 5.

***G\_BCRGA2-05***

As stated in Master Response 10, for the development of the CVFPP and formulating the SSIA, DWR considered various forms of storage for flood management, including operational changes to existing reservoirs with flood storage, new or expanded flood storage in reservoirs, and storage in floodplains. Specifically, one of the preliminary approaches—Enhance Flood System Capacity—included enlarging the flood storage allocation of several multipurpose reservoirs to improve management of flood risks on lands protected by the SPFC. This evaluation found potential benefits from and opportunities for reservoir flood storage and operational changes, such



as improving flexibility in managing hydrologic changes (such as climate change) and potentially offsetting the hydraulic effects of certain system improvements on downstream reaches.

Storage elements ultimately retained in the SSIA are based on preliminary systemwide analyses conducted for the 2012 CVFPP, legislative direction for the CVFPP, and the findings of prior and ongoing studies. Among those studies are ongoing surface storage investigations and prior local, State, and federal studies such as the Shasta Lake Water Resources Investigation, North-of-the-Delta Offstream Storage (Sites Reservoir), In-Delta Storage Program, Los Vaqueros Reservoir Expansion, and Upper San Joaquin River Basin Storage Investigation (Temperance Flat Reservoir).

As also stated in Master Response 10, a feasible and cost-effective surface-storage project could be developed only under specific circumstances, and even if it is feasible, additional surface storage may not provide meaningful flood management benefits.

***G\_BCRGA2-06***

See response to comment G\_BCRGA2-05.

California Cooperative Rice Research Foundation, Inc.  
Rice Experiment Station  
P. O. Box 306 • Biggs, California 95917-0306  
Telephone: 530-868-5481 • Fax: 530-868-1730  
ricestation@crrf.org



## G\_CCRRF1

To: Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento, CA 95821

Subject: State of California's Draft Central Valley Flood Protection Plan

G\_CCRRF1-01

The Rice Experiment Station (RES) is located on the banks of the Cherokee Canal at Highway 162 West and the site of proposed Feather River Bypass. For 100 years we have developed rice varieties, conducted cooperative UC and USDA research, and are a cornerstone of the California Rice Industry. We believe the proposed plan, if enacted, will have a devastating impact on our institution and its support of the California Rice Industry as well as the agricultural health of the region.

G\_CCRRF1-02

### RES

- RES is a 500 acre non-profit grower owned/funded research and seed production facility developing rice varieties, producing foundation seed, and conducting agronomic research with the UC and USDA since 1912. Over 90% of the varieties grown in California were developed at RES.
- Facilities include laboratories, greenhouses, seed drying, seed storage, seed cleaning, office and support buildings, research and production implements, and two solar arrays. Research production fields have been engineered to support these activities.
- Foundation Seed, the basic seed stock for the state's 550,000 acres, is produced, dried, cleaned, stored and distributed on site.
- Germplasm, the breeding lines and genetic stocks that are irreplaceable are stored in the breeding seedhouse that includes a refrigerated humidity controlled storage container.

The concept of expansion of the Cherokee levee to form a Feather River Bypass would appear to condemn this facility and relocation opportunities and cost could be fatal for this institution.

G\_CCRRF1-03

### Agricultural Production

- The estimated 25% farming loss from this proposed bypass is unacceptable on many levels:
  - Financial impact on affected farming operations
  - Loss of revenue to related business and regional government
  - Need to protect very productive farm land for anticipated global food demands
- A component of habitat expansion has been inserted, under the guise of flood control.

April 5, 2012

Page 2

G\_CCRRF1-04

Summary Statement

The Central Valley Flood Protection Board is charged with a formidable task. I have tried to provide some specific concerns from an agricultural perspective. Our organization is a member of the Butte County Rice Growers Association and has reviewed and support the written input provided from CEO Carl Hoff, especially the need for new or enhanced water storage.

G\_CCRRF1-05

The 100 year flood plain boundary passes through our research facility and we recognize that these are lowlands and subject to flooding. We have productive heavy clay soils, and this is why we are located here. There are flood risks associated with agricultural lands that have to be accepted. The Board is strongly urged to seriously consider:

1. The excavation of the Cherokee Canal to return it to a fully functioning flood control structure. Inadequate maintenance, sediment buildup, and environmental restrictions changing it into habitat, the designed flood control capabilities of the canal have been compromised. The narrow channel and trees and vegetation do not "buffer and guard" the levee but restricts flow and has the opposite effect. The adjacent lands are fertile, productive, profit making, tax generating, food producing, wildlife rich, and agricultural resources. They need to be supported and protected and not discarded to fulfill an environmental agenda for natural habitat merged with an extremely expansive and expensive flood control solution.

G\_CCRRF1-06

2. The existing canals and irrigation system and substantial acreage of rice fields in the region should be evaluated for their ability to help absorb a major flooding event. Release structures from the Cherokee could be installed that could be opened as needed to dissipate the pressure on the system at the occurrence of a "200 year flood event". Certainly there would be losses associated with releases, but clearly it would be an economically more feasible plan. It would have a significantly better cost benefit analysis for the State of California our agricultural productivity, as opposed to condemning acres of productive farm land to a bypass structure.

G\_CCRRF1-07

3. Finally, agriculture is a primary industry and resource for this region, the Central Valley, and the State. It needs to be preserved and protected.

Sincerely,



Kent S. McKenzie  
Director and Plant Breeder

## California Cooperative Rice Research Foundation

### *Response*

#### ***G\_CCRRF1-01***

As stated in Master Response 1, the CVFPP is a high-level document that describes the State's vision for a sustainable flood management system in the Central Valley. The SSIA is a responsible and balanced investment approach to achieve this vision. The CVFPP and its PEIR do not permit any specific actions to move forward that would be subject to further evaluation under CEQA. The CVFPP does not provide detailed project descriptions or funding assurances, nor does it preclude any future actions that could contribute to flood management goals. The existing bypass system in the Sacramento River Basin (including the Sutter and Yolo bypasses and associated inflow weirs) forms the central backbone of the Sacramento River Flood Control Project and redirects damaging floodflows away from the main channels of the Sacramento and Feather rivers. The considerable capacity of the bypass system (up to 490,000 cfs) also slows the movement of floods, effectively attenuating flood peaks and flows into the Delta. The existing bypass system also supports a vibrant seasonal agricultural economy and provides important habitat for multiple terrestrial and aquatic species. In the San Joaquin River Basin, the bypass system includes the Chowchilla, Eastside, and Mariposa bypasses. The Central Valley Flood Protection Act of 2008 requires DWR to evaluate ways to "...expand the capacity of the flood protection system in the Sacramento-San Joaquin Valley to either reduce floodflows or convey flood waters away from urban areas" (CWC, Section 9616(a)(2)). Bypasses have served an essential role in providing these functions. For additional details, see Master Response 1.

#### ***G\_CCRRF1-02***

As stated in Master Response 1, the CVFPP is a high-level document that describes the State's vision for a sustainable flood management system in the Central Valley. The SSIA is a responsible and balanced investment approach to achieve this vision. The CVFPP and its PEIR do not permit any specific actions to move forward that would be subject to further evaluation under CEQA. The CVFPP does not provide detailed project descriptions or funding assurances, nor does it preclude any future actions that could contribute to flood management goals.

Specific dimensions, capacities, and alignments for expanded and new bypasses have not been determined as part of the preliminary analyses conducted for the 2012 CVFPP. The analyses contained in the 2012 CVFPP are intended to be conceptual only; they were included as a basis

for a program-level analysis that would allow broad comparisons of various flood management options. Potential locations and preliminary sizes described in the plan were identified using information obtained from previous studies and through discussions with local agencies and stakeholders.

Considerable additional work will be required before the bypass projects proposed in the plan are approved and implemented. Details about the dimensions, capacities, and alignments of expanded and new bypasses will be refined during post-adoption implementation activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these activities are conducted, the feasibility of proposed bypass elements will be evaluated and opportunities for public engagement and input will become available.

Several commenters expressed concern regarding the potential for particular properties to be included in a bypass proposal. Concerns were also expressed that preliminary identification of conceptual bypass designs might create a “cloud” over the properties, making it difficult to manage, obtain loans for, or sell those properties. DWR and the Board wish to make clear that the conceptual designs reflected in the CVFPP do not reflect a determination regarding any specific properties, and that the potential involvement of particular properties in any future bypass project is entirely speculative at this time. For additional details, see Master Response 1.

**G\_CCRRF1-03**

As stated in Master Response 1, the PEIR recognizes that converting current land uses (particularly agricultural uses) to bypass and related uses (such as habitat and recreation) would result in potentially significant and unavoidable impacts, particularly on agriculture, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA). Many commenters expressed the view that such conversions should not occur, and that including such conversions in the SSIA undervalues agriculture as a primary industry in the Central Valley that provides a range of economic, social, habitat, and other benefits. Many commenters also explained that particular lands have been in family ownership for generations, often dating back to the earliest days of statehood. DWR and the Board respect these benefits and the relationships that many individuals have to any lands that might be converted, which are anticipated to be substantial topics during any project-level public engagement processes. However, the DPEIR has adequately addressed the environmental issues at a program level and no new significant environmental topics or information were raised in the comment. As stated in Master Response 3, the SSIA outlines various State

investments that would contribute to improved flood-risk management in rural-agricultural areas outside small communities. These actions are aimed at promoting sustainable rural-agricultural economies without inducing imprudent urban development or increasing flood risks within lands protected by the SPFC. For additional details, see Master Responses 2 and 3.

As stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)). The SSIA includes the supporting goal of improving ecological conditions on a systemwide basis where feasible while meeting multiple objects by using integrated policies, programs, and flood-risk reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time. Under the SSIA, ecosystem restoration opportunities are integral parts of flood system improvements, including projects for urban areas, small communities, and rural-agricultural areas. Integrating ecosystem restoration into these flood protection projects will focus on preserving important SRA habitat along riverbanks and help restore the regional continuity/connectivity of such habitats. In addition, SSIA ecosystem restoration activities may include improving fish passage, increasing the extent of inundated floodplain habitat, creating opportunities to allow river meandering and other geomorphic processes, or other measures that may be identified during post-adoption activities. Potential effects on flood management and channel capacity will be considered during implementation of any ecosystem restoration actions. Post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, State and USACE permitting) will allow for detailed development and review of the conceptual ecosystem restoration targets described in the CVFPP and its attached Conservation Framework. Appendix E, “2012 Central Valley Flood Protection Plan Conservation Framework,” provides a preview of a long-term Conservation Strategy that DWR is developing to support the 2017 CVFPP Update. The Conservation Framework focuses on promoting ecosystem functions and multi-benefit projects in the context of integrated flood management for near-term implementation actions and projects. The Conservation Framework provides an overview of the floodway ecosystem conditions and trends and key conservation goals that further clarify the CVFPP’s ecosystem goal.

**G\_CCRRF1-04**

Responses to comments submitted by the Butte County Rice Growers Association are contained in this FPEIR within the section entitled “Group Comments” under letter codes G\_BCRGA1 and G\_BCRGA2.

**G\_CCRRF1-05**

As stated in Master Response 6, DWR recognizes the importance of proper maintenance to protect State, local, and federal investments in the flood management system. However, maintenance activities alone do not meet current needs or legislative requirements for the CVFPP (e.g., urban level of protection, systemwide approach, and providing multiple benefits). This is highlighted in the evaluation conducted for the preliminary approach called “Achieve SPFC Design Flow Capacity.” Improving O&M is a supporting goal of the CVFPP. The SSIA includes elements to address and improve O&M at existing facilities as part of residual risk management. These elements include identifying and repairing after-event erosion, developing and implementing enhanced O&M programs and practices, and forming regional O&M organizations and sustained investments in flood system maintenance (management of the Sacramento River channel and levees, bank protection, and rehabilitation of flood structures). For additional details, see Master Response 6.

**G\_CCRRF1-06**

With regard to the commenter’s suggestion that rice fields should be evaluated for capacity to handle additional flood flows, as stated in Master Response 9, three preliminary approaches were used to explore a range of potential physical changes to the existing flood management system and help highlight needed policies or other management actions: Achieve SPFC Design Flow Capacity, Protect High-Risk Communities, and Enhance Flood System Capacity. Evaluating these preliminary approaches provided information on their costs, benefits, and overall effectiveness. None of the three preliminary approaches were found to fully satisfy the legislative requirements and CVFPP goals in a cost-effective manner. However, the most promising elements of each were combined to formulate the State’s preferred approach—the SSIA. As stated in Master Response 1, the CVFPP and accompanying attachments provide additional details about the formulation and screening of elements included in the SSIA. As stated in Master Response 1, specific dimensions, capacities, and project alignments have not been determined as part of the preliminary analyses conducted for the 2012 CVFPP. The analyses contained in the 2012 CVFPP are intended to be conceptual only; they were included as a basis for a program-level analysis that would allow broad comparisons of various flood management options. Potential locations and preliminary sizes described in the plan were identified using information obtained from previous studies and

through discussions with local agencies and stakeholders. For additional details, see Master Responses 9 and 1.

***G\_CCRRF1-07***

As stated in Master Response 2, the CVFPP is a high-level document that describes the State's vision for a sustainable flood management system in the Central Valley. The SSIA is a responsible and balanced investment approach to achieve this vision. The CVFPP and its PEIR do not permit any specific actions to move forward that would be subject to further evaluation under CEQA. The CVFPP does not provide detailed project descriptions or funding assurances, nor does it preclude any future actions that could contribute to the State's flood management goals.

The 2012 CVFPP outlines a broad range of potential physical and institutional projects and actions to reduce flood risks. Some actions identified in the SSIA can be implemented within the existing footprint of the SPFC, while others will require new lands and/or easements. Because the SSIA was developed at a conceptual or program level, it does not identify any specific project; therefore, any lands or properties that may be needed to implement the plan are unknown at this time. Initial, preliminary planning-level analyses indicate that actions outlined in the SSIA (expansion of the bypass system; new bypasses; and levee reconstruction, including levee setbacks) could expand flood system lands by as much as 40,000 acres. However, this initial estimate will be refined during follow-on studies and further analysis conducted after adoption of the CVFPP. It is anticipated that land uses within any expansions of the flood management system would be a mix of flood facilities and agricultural and environmental conservation uses; however, the exact amount and geographical distribution of these land uses will require further analyses as future specific projects are considered and evaluated. For additional details regarding agricultural land conversion and effects, see Master Response 2.





CALIFORNIA CENTRAL VALLEY  
**FLOOD CONTROL**  
ASSOCIATION

# G\_CCVFCA1

<i>Executive Director</i>	MELINDA TERRY
<i>President</i>	MIKE HARDESTY
<i>Vice President</i>	LEWIS BAIR
<i>Treasurer</i>	KENNETH A. RUZICH

April 18, 2012

Ms. Nancy Moricz  
Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento, CA 95821

Re: Comments on the Draft Central Valley Flood Protection Plan and Draft  
Programmatic Environmental Impact Report

Dear Ms. Moricz:

G\_CCVFCA1-0 The California Central Valley Flood Control Association (CCVFCA or Association) and its members offer these comments on the draft Central Valley Flood Protection Plan (CVFPP) developed by the Department of Water Resources (DWR) for consideration and adoption by the Central Valley Flood Protection Board (CVFPB). The draft plan properly seeks to articulate a vision by which investments can be made in flood control infrastructure over the next several decades; how the flood control system could be modified to improve public safety while reducing conflict with competing demands; and identifying non-structural and other flood management actions to further reduce flood risk.

G\_CCVFCA1-02 Importantly, the Association's comments are made with the understanding the plan is seeking to be a vision or a framework for planning important projects to occur in the future and **not** a list of projects to be approved now for implementation. Our comments are made with the understanding that: (i) more planning, coordination with stakeholders, and decision-making is required before any of the various projects discussed in the State System-Wide Investment Approach (SSIA) are to be approved, let alone implemented in the future, and (ii) the plan, when adopted, will not act to prevent a local community from implementing sensible levee repairs or improvements deemed necessary at the local level and do not create a hydraulic impact. That said, the Association believes it is critical for the CVFPB to revise the plan before adopting it to address each of the comments below or ensure each comment is adequately addressed through a detailed and time-specific implementation framework. In light of the short time for plan adoption, we have sought to limit our comments to only the issues of critical concern that would prevent the Association from supporting the Board's adoption of the plan.

G\_CCVFCA1-03 Our substantive themes are summarized herein and a more detailed comment on each of these themes is contained in the attached document:

- To provide greater flexibility and cost-effectiveness, we believe it is necessary to consider adopting an optional alternative to the traditional U.S. Army Corps of Engineers (USACE) Civil Works Program for the State and locals to use, in the event the Federal process is an unreliable vehicle for implementing flood protection improvements in the valley. This will allow the State and locals to move forward with sensible levee repairs and improvements deemed necessary at the local level, without the Corp if necessary. We propose the CVFPP include a series of tools/options which could be used to implement the plan, in the event the Federal government does not participate in the historically traditional manner. (See Comment A on the Attached.)

G\_CCVFCA1-04

- We believe it to be most prudent to prioritize our limited present and future revenues toward physical improvements to the system rather than costly studies. We strongly recommend funding for the planning element of the plan be limited, with the remaining local and State investment proposed for 2012-2017 focused on design and construction of specific flood risk reduction projects. We believe that State funding of efficient USACE studies, such as those under the new 3X3X3 program, is an appropriate use of the planning funds. (See Comment B on the Attached.)

G\_CCVFCA1-05

- We recommend the draft plan be amended to explicitly consider local and regional agencies as the primary option for studies and construction of all improvements, including system improvements. In offering this recommendation, we recognize there may be some occasions where the scale of a project (or other factors) may render a local approach impractical, particularly with regard to construction. However, local involvement is still highly valuable and relevant for the reasons described below. We further believe the draft plan should include a detailed outline for implementation in the next year, including a timeline and a program for State funding of local involvement. (See Comment C on the Attached.)

G\_CCVFCA1-06

- The draft plan uses information from the economic analysis and displays it in a way that could be interpreted as proposing a new method for evaluating hydraulic impacts. We are opposed to deviating from the long-standing policies of both the CVFPB and USACE that make clear strengthening a levee does not constitute an adverse hydraulic impact. We request this section of the plan be revised to make clear that this information is for purposes of evaluating the economics of the alternatives and not a proposal to deviate from the CVFPB and USACE's established procedures for analyzing hydraulic impacts. (See Comment D on the Attached.)

G\_CCVFCA1-07

- The plan's primary focus needs to be public safety. As drafted, implementation of the draft plan will have significant impacts to agriculture in the Central Valley. The plan includes clarity of that vision for the urban areas, but far less clarity for the rural areas, due to insufficient coverage of impacts. While the plan identifies the potential impacts on the rural areas and discusses the need for programs to mitigate these impacts, the plan does not make adequate commitments to these programs and appears to underestimate costs necessary to meet the objectives of the plan, thus failing to address the broader

implications of the Plan to the agricultural economy. The lack of specific commitment for rural levee repairs and improvements must be prioritized and addressed in the plan's early implementation and include language to ensure the cost underestimates do not disadvantage rural communities or preclude necessary funding for rural projects and small communities later. (See Comment E on the Attached.)

G\_CCVFCA1-08

- The plan needs a consistent message on the potential for climate change to affect extreme precipitation events. While some portions of the plan properly describe the state of the science on the effects climate change may have on these events as uncertain, recommending further study and flexibility to address future changes, other portions of the draft plan use much more alarmist terminology, such as "...climate change is likely to generate more extreme floods in the future." The draft plan must use terminology consistent with the literature review and science. (See Comment F on the Attached.)

G\_CCVFCA1-09

It is our belief that each of these themes can and should be addressed before the CVFPP is adopted or through a detailed and time-specific implementation framework. In addition to the specific changes we offer here, we request the CVFPB again evaluate which documents it needs to adopt by the statutory deadline.

Our review of the various appendices of the plan has shown many good quality documents, but some documents go astray at times on key issues. Importantly, some of our comments herein can be addressed by the CVFPB electing to adopt the plan **but not necessarily all of** the appendices by the June deadline and continuing discussion and revisions of the other documents. Should the CVFPB desire to adopt the appendices, the Association would have many more comments which would need to be addressed for the Association to not actively oppose the plan.

Further, a decision by the CVFPB to adopt the plan, and not the appendices, is consistent with the view that the plan articulates a vision or framework, and not a list of specific projects. Under this formulation, the appendices remain valuable resources upon which future detailed planning will occur.

G\_CCVFCA1-10

We appreciate DWR and the CVFPB's willingness to engage on these issues and look forward to discussing these comments and assisting DWR and the CVFPB in developing modifications to the draft plan and its appendices to allow adoption by the statutory deadline. In addition, as noted in the Legislative Matrix attached to the main body of the draft plan, the CVFPB is permitted to appoint advisory committees to assist with the plan's development. We encourage the creation of such committees and would be happy to actively participate.

G\_CCVFCA1-11

Finally, in our review of the many appendices of the draft plan, and the draft PEIR and supporting documents, we have identified several other specific comments. However, we have limited our comments to just the significant ones in light of our proposal that the appendices not be adopted by the June deadline. These comments are provided in the attachment.

If you have any questions about the materials in this letter, please feel free to contact me, or to call Ric Reinhardt at (916) 456-4400 or Scott Shapiro at (916) 520-5234.

Thank you for the opportunity to provide these comments.

A handwritten signature in blue ink, appearing to read "Melinda Terry". The signature is fluid and cursive, with a large loop at the end of the last name.

Melinda Terry  
Executive Director

**Comments of the California Central Valley Flood Control Association  
on the Draft Central Valley Flood Protection Plan**

G\_CCVFCA1-12 **COMMENT A: The role of the Federal government in Central Valley flood management.**

The Federal process for investing in flood control projects is no longer functioning as it was intended to for all projects. The U.S. Army Corps of Engineers' (USACE's) planning, design, and construction process can take upwards of 20-30 years with costs far exceeding the costs of a locally driven process. USACE's recent record is compounded by Congressional difficulty with authorizing projects in a timely fashion and appropriating funding necessary to construct projects in a reasonable timeframe. In light of these challenges, the USACE and the Obama Administration appear to be poised to implement essential beneficial changes intended to reduce this costly bureaucratic quagmire. USACE recently designated the Sutter Basin Feasibility Study as a pilot study for a new accelerated model of study completion. Likewise, USACE General Walsh has directed staff to cut dormant studies (potentially a third of those pending nationwide) to make room for resources to be applied to the remaining studies; and those remaining studies are to be completed within three years at a cost of under \$3 million. However, while these are essential reforms we support, the USACE does not yet have a record of successfully modifying their lengthy and expensive study process. Even if successful, significant concerns remain that Congress will authorize studies and appropriate money for construction of the full gamut of projects previously authorized and funded.

The uncertainty associated with future Federal involvement, or its value due to the aforementioned concerns, is in contrast to the significant role given to the USACE in the implementation of the draft plan. The draft plan assumes the USACE will be involved not only in studies and construction for local or regional projects, but that the USACE will also have a significant role in system-wide studies and improvements. While inclusion of USACE as a partner has the potential to bring financial resources to our valley and can work for certain studies and projects, it also brings with it a more time consuming and expensive process, likely resulting in higher construction costs, and uncertainty that at the end of the studies there will be a defined Federal interest that the Administration will follow through with a recommendation for authorization and funding. This strategy poses too much unnecessary risk and uncertainty to the State and local interests and therefore should not be the only option available in the plan. While these delays and additional costs are worth it to State and local agencies when the USACE can complete a study quickly and Congress can quickly authorize and provide a reasonable level of annual appropriations, the delays, costs, and uncertainty are not a good deal without Federal funding arriving in a timely manner. In addition, there is no stated strategy for how to implement system-wide improvements consistent with current federal funding requirements such as the current benefit-cost formulation, or how these requirements would need to be changed if the State and local agencies see benefit of moving ahead without the USACE.

For these reasons we believe it would be prudent to consider including language for an optional alternative to the traditional USACE Civil Works process for some flood control projects going forward, to be used in the event the USACE's expensive and cumbersome study and construction process proves to be the less efficient, cost-effective and viable vehicle for flood protection improvements throughout the valley. We believe a combination of tools can help make the State's plan achievable, even without the additional Federal resources. We therefore recommend

the following section be inserted into Chapter 4.1.4 of the plan at the end of the section entitled “Role of USACE in Flood Risk Reduction Projects”:

As noted, the SSIA relies heavily on the USACE for the planning, funding, and implementation of local, regional, and system-wide improvements. However, the trend over the last several decades has been for the USACE to have a much less prominent role in implementing levee improvement projects in the Central Valley. For example, while the USACE has conducted feasibility studies, many of the Central Valley’s urban areas have moved forward with construction programs for the same levees. This is not to say there have not been successes with partnering with the USACE, such as the Common Features Project on the American River, the Marysville Ring Levee Project, and the Joint Federal Project to modify Folsom Dam. However, these successes have been few and far between in comparison to the number of studies underway. In order for the SSIA to succeed as drafted, it will be essential the USACE and Congress be dedicated partners for flood damage reduction projects in the valley, requiring appropriations in the valley on the order of \$500 million annually for at least two decades. To the extent this model does not work going forward, the implementation approach for the SSIA needs to allow the study and implementation to be shifted away from USACE for some studies and projects and toward the State and locals, while also seeking other ways for the Federal Government to cost share in these projects. This alternative approach might be used for many of the projects to be pursued under the plan, or only some of the projects where Federal involvement proves difficult. While this alternative approach for Federal involvement represents a radical realignment of the historical local-state-Federal roles, it can be accommodated through the use of the following tools:

(1) locally and regionally-led studies can determine the most cost-efficient and highest benefit projects to be pursued, at a lower cost than USACE’s traditional civil works study process; (2) likewise, local construction can be performed at a lower cost; (3) local construction of system-wide improvements can be accelerated to occur over a ten year period, instead of a 25-30 year period, for a lower cost and also avoiding flood damages by completing projects sooner than could be done based on the historic timeline for USACE projects; and (4) new revenue streams for Federal funds can be explored, such as a block-grant program as administered by the U.S. Department of Transportation, USDA, and/or FEMA, or a low-interest revolving loan program administered through a Federal infrastructure bank.

DWR and the CVFPB will work collaboratively with local agencies and the USACE to evaluate the most-promising studies and projects upon which to partner and proceed with the remaining activities utilizing the tools from the alternative approach outlined above.

G\_CCVFCA1-13 **COMMENT B: The pursuit of flood damage reduction projects through lower-cost, expedited studies.** Page 4-32 of the draft plan identifies the activities that are included in the draft plan for “Flood System Risk Assessment, Engineering, Feasibility, and Permitting.” Table 4-3 identifies the costs associated with this element. Significantly, to date over \$450 million has been spent, an additional \$450-\$530 million is proposed over the next five years, and a total of

\$1.89-\$2.3 billion is estimated over the life of implementation of the CVFPP. However, it is not clear what portion of this is for planning versus what portion is allocated to engineering for specific projects. If this is primarily for planning efforts, this represents an enormous investment which would be disproportionate to the value of such planning studies and seems to follow the expensive and lengthy USACE process described above. While the greatest value of a plan is to be able to make informed, intelligent decisions and to understand the effect of those decisions on a complicated and integrated system, more data is not always useful. As the USACE has discovered through its pilot study program, sometimes all that is necessary is identifying the risk that remains from not having more data. It is essential these issues not be over-studied. To do so, increases costs and delays critical to needed public safety improvements. We do not support perpetuating such a flawed and outdated model. In addition, some of these projected costs appear aimed to support a Federal-centric study program, which as discussed above, may not be the best path forward, or even if it is the accepted path, it should be a lower cost under the newly proposed Federal 3x3x3 model.

In addition, the ability to develop revenues to fund these programs requires us to present success stories, and demonstrate we are good stewards of public funds. This is true whether requesting general fund or bond appropriations from the State Legislature, advocating to the public to support approval of future bond issuances, or raising local share through a Proposition 218 election. Therefore, we believe it to be most prudent to prioritize our limited present and future revenues toward physical improvements to the system rather than more costly studies.

G\_CCVFCA1-14

**COMMENT C: Future projects must be implemented promptly through a bottom-up structure.** Section 4.4.1 of the draft plan appropriately recognizes a role for local agencies in developing regional plans and in implementing future projects. However, it does not clearly delineate the respective roles of the State of California and local agencies. The draft plan states the State intends to seek active involvement from local agencies in the development of regional plans, but it appears the State is proposing to lead this effort, as it has done with the draft Plan development with the support of State contractors as consultants. While this process may be able to quickly provide significant human resources toward these tasks, doing so may prove problematic in addressing the complexity of issues at the local level such as concerns of property owners, interest groups, and local communities. Implementing any flood control project, and in particular large-scale projects which require moving levees, is almost always controversial and difficult to achieve without local support. Local agencies are best equipped to navigate this process as they are closer to the property owners, understand the issues communities face to implement a project, and are capable of overcoming these obstacles, as demonstrated with the success of the EIP projects. In addition, local agencies will often be capable of completing construction of the system improvements more quickly and at a lower cost than either DWR or the USACE.

For these reasons, we recommend the draft plan be revised to explicitly consider local and regional agencies as the primary option for studies and (in appropriate circumstances) construction of improvements, including system improvements. We further believe the draft plan should include a detailed implementation framework for the next year, including a timeline and a program for funding local involvement.

The boundaries of the proposed regions should also be revisited with local input and support sought. The boundaries of the regions are critical building blocks for a regional planning effort that will only succeed with local endorsement and expertise. Unfortunately, some of the boundaries as currently described will create division and discord in the subsequent planning process unless they are modified. For example, the region encompassing the Feather River Bypass should include affected stakeholders that would be subjected to higher and longer duration flows in the Butte Basin.

The following language should be used in place of the text included in the draft plan in Section 4.4.1:

To document site-specific flood system improvement needs and to utilize the local experts in developing local flood damage reduction and investment strategies, the State will look to local entities and other interested stakeholders to define local flood system improvements that support the SSIA. This work will be site-specific for individual river reaches and may begin with each FPZ within the potential implementation regions or regional projects/programs and associated feasibility analyses.

The regional plans will typically be prepared by a coordinated effort of local maintaining agencies and regional flood management agencies, with oversight by DWR and involvement of the counties and cities within the region, and agricultural and environmental interests. The role of counties and cities in the planning process is important because, among other things, they are required to update their general plans to incorporate information used to prepare the regional plans. In some instances, a particular city or county may also be vested with a leading role (akin to that of local maintaining agencies and regional flood management agencies) in regional plan preparation. DWR will support the planning process by providing any available information, coordinating the actions of the various regional groups, lending expertise, and providing financial assistance for preparing the regional plans. The financial assistance for planning will be provided without a local cost share (subject to appropriation), with the local agencies contributing their considerable staff time and expertise to the process.

The local agencies sponsoring the planning process may elect to form a joint powers agency for the planning effort, or may elect to develop a partnership through the use of a memorandum of understanding, in which they establish basic operational fundamentals such as governance, relative fund contribution for construction of future projects, regional coverage, and other issues. While DWR's integrated regional water management grant program is not necessarily an applicable model to fund these efforts, there may be certain aspects of the program which can be used to accelerate the creation of a funding program for these regional plans.

Based on analyses conducted for selected projects in a region, a regional financing strategy will also be prepared and will identify potential federal, State, and local cost-sharing. The cost-sharing formula will be based upon guidelines prepared by DWR and may differ based on the nature of the flood risk reduction needs of and



systemwide benefits achieved in each region. The regional analyses will be combined with the regional financing plan to form a regional flood management plan. To implement SPFC improvements from a systemwide perspective, evaluations will consider monetary and nonmonetary benefits on a regional basis, to be updated as system improvements are defined over time.

The State and its local and regional partners will need to develop benefit-cost analyses by focusing on different project purposes in various reaches of the system. For example, in urban areas the focus would likely be on flood risk reduction, while in rural-agricultural areas the focus would be on rural levee repairs, levee improvements for the small community supported by floodplain management and improved ecosystem function and sustainability. The State proposes to provide a greater cost-share at the local level for environmentally beneficial projects, such as setback levees, to promote the use of these projects. Among other forms of creative local cost-sharing, the State will allow local rural entities to cover their specific cost-sharing requirement with in-kind services, agricultural conservation easements, and other compatible elements.

Development of regional flood management plans and formulation of specific capital improvement projects will continue after completion of the 2012 CVFPP. This plan development process will coordinate with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts with these other efforts. The information gathered for the regional flood management plans will be used to choose projects to be implemented during the five year life of the 2012 CVFPP and will help development of the State basin-wide feasibility studies scheduled for completion by 2017.

A review of areas protected by facilities of the SPFC initially identifies regions with varying characteristics (see Figure 4-3). Ultimately, more or fewer regions may be used, depending on organization and preferences of local entities.

We believe the CVFPB should consider inclusion of a timeline in the plan such as the following:

<b>Milestone</b>	<b>Deadline</b>
Self-determination of proper regional workgroups with DWR involvement	September 15, 2012
Grant program applications for regional studies made available to regional workgroups	September 30, 2012
Grant applications due to DWR	October 31, 2012

DWR award of grants	November 30, 2012
Draft regional plans presented to DWR from regions	July 30, 2013
Final regional plans presented to DWR	September 30, 2013

G\_CCVFCA1-15 **COMMENT D: Clarification regarding economic versus hydraulic analysis.** While not pervasive, in certain key places the draft plan uses information from the economic analysis and extrapolates those results to describe changes in flood stages, which might be interpreted by the reader as representing hydraulic impacts associated with the action of strengthening levees in each alternative. Such an approach would be inconsistent with current practice and not supported by the Association.

Currently, the CVFPB and USACE analyze impacts of proposed projects by examining changes in roughness, geometry, levee height, and levee location. Both the CVFPB and USACE have concluded that mere strengthening of a levee does not have an adverse impact. The philosophy behind this approach is that no community should rely on benefiting from failure of upstream levees. While the CVFPB’s approach has been to use traditional deterministic methods to calculate hydraulic impacts, the USACE has developed a new procedure that is risk based, which is documented in “Documentation and demonstration of a Process for Risk Analysis of Proposed Modifications to Sacramento River Flood Control Project Levees” (USACE HEC, 2009). However, under either approach, the CVFPB and USACE have consistently found that strengthening an existing levee does not have a hydraulic impact on upstream or downstream communities, therefore this Plan should not deviate from this accepted approach.

Attachment 8C of the draft plan analyzes the benefits of system improvements by failing the unimproved levees at an elevation DWR has determined has an 85% probability of failure; and then quantifies the changes in stage in the system from where the water no longer enters the basin once the system-wide improvements are in place. While appropriate for evaluating the economic benefit of such an alternative, this information should not be displayed or promoted in a way that could be interpreted as a hydraulic impact analysis. In addition, it is inherently difficult to estimate the elevation at which a levee will fail anyway. The likelihood of a levee failing is a function of many factors, including the flood elevation, the duration of high stages, and ongoing flood fighting efforts. While the draft plan takes a reasonable approach for purposes of an economic analysis, it would not be appropriate to use this same methodology for calculating hydraulic impacts. Accordingly, this distinction should be made clear in the plan.

G\_CCVFCA1-16 **COMMENT E: The CVFPP and its effects on rural levees and agriculture.** Implementation of the draft plan, and in particular the commitment to system-wide improvements aimed at public safety, will have significant impacts to agriculture in the Central Valley. The direct loss of farmland from the footprint of levee improvements, coupled with the conversion of 10,000 acres

of farmland to habitat and decreased productivity resulting from putting 30,000 acres of farmland currently protected by levees into the bypasses, will threaten the sustainability of agriculture as the dominant economic engine of the Central Valley. While the draft plan includes elements to benefit the agricultural areas, additional action is needed, such as consideration of the reinsertion of previously deleted Management Action #82, which would allow the State to provide appropriate compensation to rural land owners. The following are aspects of the draft plan that need to be strengthened or added to offset the impacts to rural communities and agriculture to minimize the long-term effect on the sustainability of agriculture in the Central Valley:

**a. Commitment to Small Communities** – The draft plan acknowledges the value of small communities and the need to preserve these communities to support the agricultural economy. The system improvements have the potential to benefit many of these small communities. However, implementation of the system improvements will likely take decades and may not provide adequate protection for these communities in the interim. The draft CVFPP does identify an option to make structural and non-structural improvements to benefit the small communities separate from benefits to be achieved from system improvements. But, many of these structural and non-structural improvements will have implementation challenges. It is anticipated many of the small communities would prefer structurally improving the existing levees, or construction of new levees, as an alternative to elevating structures. However, the draft plan makes clear there are limits on the level of funding that should be spent on making structural improvements by establishing a planning level threshold of approximately \$100,000 per house for investment in structural measures. This threshold may make sense, and can be relied upon by small communities if the draft plan contained reasonably accurate cost estimates for the structural measures. However, as illustrated in the following comments on two of the cost estimates contained in the draft plan, the estimates for these measures do not always appear reasonable. While these examples are from the Sacramento system, the comments are applicable to small communities throughout the valley:

Wheatland – The City of Wheatland is an urbanizing community with an approved general plan that will result in the population exceeding 10,000 people when build-out is complete. The City, RD 2103, and RD 817 have been coordinating on the implementation of a program of levee improvements to protect Wheatland and have completed five miles of repair to the Bear River levee under the EIP Program. They have identified the need to improve an additional four miles of levee on Dry Creek to complete the levee improvement program. While little is known about this levee, RD 2103 requested MBK Engineers and Wood Rodgers prepare a scope of work to conduct a problem identification study and alternatives analysis for the four miles of levee. Their cost estimate to conduct the study (not perform repairs) was approximately \$1.1 million. This study has not yet been conducted, but what is known is the entire reach of the Dry Creek levee is freeboard deficient and there are likely slope stability and geometry deficiencies as well. While the per mile cost of repairs is anticipated to be significantly lower than what has been typical of the urban areas, a planning level estimate of \$3 million-\$5 million a mile, for a total of \$12-\$20 million to improve all four miles of Dry Creek appears reasonable. In contrast, appendix 8J of the draft plan, page D-42 and figure D-16, identifies the need to repair 16.07 miles of levee to protect Wheatland, but states that only improvements to the Dry Creek levee are recommended. The appendix does not identify the length of the Dry Creek repairs,

but does estimate the cost of these improvements at \$0.9 million total. It is not clear how this number was developed, but local analysis suggests this estimate is not accurate.

Nicolaus – Appendix 8J of the draft plan, page D-23 and figure D-8, identifies the need to repair 13.27 miles of the existing levee, but states “...hydraulic modeling results overlaid on an aerial photograph showed no inundation during a 1 percent AEP flood in the town.” The modeling is clearly inaccurate, as the town is immediately adjacent to the RD 1001 levee and the town was recently mapped by FEMA into the 100-year floodplain. Of particular concern to this community is that a levee failure in the vicinity of the town would result in rapid, deep flooding, with water temperatures approximately 50 degrees and a high likelihood of loss of life. The text on page D-23 identifies the cost of repairing “Segment 247” at \$1.9 million. However, there is no definition of what Segment 247 is and whether or not it includes all of the 13.27 miles identified on figure D-8. While detailed studies have not been performed on this reach of levee, it is comparable in height to levees in RD 784 and RD 1000, with similar levee geometry and foundation conditions. Therefore, it is likely the costs of improving this levee to meet FEMA 100- year standards would be comparable to what has been required for the TRLIA and NLIP programs. Accordingly, a planning cost of \$15 million a mile would be more realistic for this levee. If all 13.27 miles are necessary to provide this community with 100-year protection, a more accurate cost estimate would be \$199.05 million, rather than the \$1.9 million estimate included in the draft plan.

While we understand the numbers contained in these two examples may represent errors in drafting or other unique circumstances, a review of these two examples does show that if the draft plan had more accurate costs estimates, the likely conclusion is the State would not invest in levee improvements for these two communities based on the \$100,000 per house threshold. Failure of the State to invest in these small communities based on faulty numbers will increase risks in these communities. If the cost estimates in the adopted CVFPP are under-predicted, it will have significant implications for the effectiveness and implementability of the CVFPP, as the small communities have the expectation that implementation of the CVFPP will include levee improvements for many of the small communities. Failure to correct these faulty numbers will result in a likely backlash from the small communities, rural areas, and agricultural interests complaining the State did not deliver what was promised during the development of the CVFPP and puts their communities at unacceptable risks. Everyone will benefit from having accurate cost estimates of what it will take to provide 100-year protection to the small communities, so these communities are not neglected in the State’s investment decisions, and so they understand the benefits they can expect from implementation of the CVFPP. In the absence of confidence the cost estimates are accurate, we recommend the draft plan clearly provide the State’s commitment for the protection of small communities, but without the inclusion of the \$100,000 estimate per home as the *only* basis to determine if structural adjustments are cost-effective. During the regional planning which will occur following adoption of the CVFPP, local interests can develop better cost estimates to protect these small communities upon which good planning decisions can be made.

**b. Investment in the Rural Areas** – The draft plan identifies a rural levee program and the need to develop a rural levee repair standard. Early plan success is dependent on the support of all flood protected communities: urban, small community and rural agriculture. The

immediate development of a rural levee repair standard is a necessary and critical component for the successful early implementation of the Central Valley Flood Protection Plan. Support for this Plan from the rural agricultural community is predicated on the adopted Plan specifying how this rural standard will be developed and a commitment to do so concurrently with other early implementation components benefitting non-rural communities moving forward. The draft plan appropriately proposes differing levels of flood protection for urban areas, small communities, and rural areas. However, the rural areas are deeply concerned there is not a firm commitment to fund the rural levee repairs and levee improvements for the small communities. Instead, all rural investments are conditioned by the phrase “if funding is available” or “where feasible.” The rural areas comprise more than 75% of the miles of levees analyzed and yet less than 15% of the draft plan investment is even “conditionally” dedicated to the rural areas. The rural areas *must* have a commitment on the level of funding to be spent from 2012-2017 on rural levee repairs and improvements for the levee systems that protect small communities.

It is understood that levee improvements and repairs for the rural areas are limited by available funding, cost to benefit requirements of the Federal and State programs, as well as the locals’ ability to cost share. However, since rural areas will remain the most at-risk of flooding, will receive the lowest level of funding, and have the least ability to cost share, consideration should be given in the Plan to the benefit the rural areas are providing and an appropriate cost share should be established for the rural levee repair program that considers these factors. We believe the following should be taken into consideration when contemplating how much should be invested in the rural areas and in developing the cost share guidelines for a grant program to fund rural levee repairs:

- Rural areas provide a benefit to the urban areas by flooding first, providing a relief valve and transitory storage for the system. Rural areas should receive recognition for their contribution to the system and for protecting the urban areas.
- Removal of productive agricultural lands from a rural levee district’s boundaries for the expansion of existing bypasses as well as the proposed new bypasses will increase the burden on the remaining property owners to fund the District’s levee maintenance program.
- Placing land currently protected behind a levee into a bypass or floodway will significantly decrease the productivity of this land, having adverse effects on the local economy. This will be further amplified by lands converted to habitat.
- The draft CVFPP fails to adequately acknowledge the substantial systemwide benefit the levees defining the bypasses provide. It does so by ignoring the State’s systemwide responsibility to provide for the maintenance, repair and rehabilitation of these facilities. Current practice imposes a disproportionate financial burden on adjacent landowners to fund the operation and maintenance of these levees, in some cases solely to provide protection from the redirected impacts of the flood control system.
- These areas have historically, and will likely continue, to receive the lowest priority for funding levee repair projects despite their importance to the system and urban areas.

- The rural levees are accepting higher levels of flood risk by agreeing that their levees do not need to be improved to meet today's engineering standards for the 1955/57 design.
- The rural areas will need assistance to invest in wet and dry flood proofing of their homes, storage and processing facilities, as well as retail and commercial structures to offset accepting a lower level of protection.
- They will also be paying higher flood insurance costs by being mapped into an A zone, which should be accounted for.
- The loss of farm land, combined with the decreased productivity of land added to the bypasses will result in higher operational costs, reduction in crop production, and have impacts on marketability and value, which must be fairly compensated.
- If unmitigated by this Plan, these areas will decline, leading to a reduction or loss of rural communities and adversely affect real estate values in the rural areas.
- Reduction in farmable acres also reduces future assessment dollars necessary to create a local share for future projects.

The above considerations should serve as the basis for developing an effective rural levee program as part of the early implementation of the Plan mentioned previously. It can be argued that for any and/or all of the above items, the rural agricultural areas should receive benefit for its contribution to the system-wide aspect of the plan. Consideration should be given to limiting the local cost share to 10% and allowing this to be paid by in-kind services, rights of way, and borrow. We endorse allowing conservation easements within basins to be used as one way of generating credits towards the cost share of repair projects.

**c. Changes to the NFIP to address agricultural issues** – The CCVFCA is appreciative that DWR understands the difficulty agricultural areas are facing as a result of being mapped into a FEMA A zone. The draft plan acknowledges the need for changes to the NFIP. Local agencies with an interest in this issue have formed the Agricultural Floodplain Management Alliance (AFMA) to seek legislation to amend the NFIP to create a new “agricultural zone” to address the problems that have been identified. The State of California’s active support is very important to achieving the needed changes to the NFIP; and we are hopeful DWR and the CVFPB will make it a priority to explicitly and actively support this effort.

**d. Other actions to mitigate the impacts on agriculture** – The draft plan notes the system improvements proposed as part of the plan could remove as many as 10,000 acres of land from agricultural production and subject another 30,000 acres to relatively frequent seasonal inundation in expanded bypass systems, reducing agricultural production. The significance of these losses will be compounded by the conversion of many thousands of additional acres throughout the region to habitat in connection with the Bay Delta Conservation Plan or similar efforts. The plan should provide measures to compensate for any resulting fiscal and economic impacts on rural counties due to lost tax revenues and diminished economic activity. In addition to direct compensation, some of these measures could be developed in concert with programs such as the SACOG Rural and Urban Connections Strategy (RUCS).

**COMMENT F: The need for a consistent and sensible approach to climate change.** The draft plan identifies the need to address climate change. The effects of climate change can take three forms:

- “will lead to a greater fraction of seasonal precipitation occurring as rain rather than snow. . . .” (page 6 of draft plan),
- Increase the rate of sea level rise, and
- May have an effect on extreme precipitation events.

However, some of the statements in the draft plan on the likely effects of climate change on extreme precipitation events go beyond the state of the science analyzing such effects, and contained in Attachment 8k. For example, page 3-22 of the draft plan states “...climate change is likely to generate more extreme floods in the future.” This statement is made throughout the report and appendices. However, in reviewing Attachment 8k: Climate Change Analysis, The Climate Change Vulnerability Analysis steers a careful course between what is known and what can be assumed about future flood potential (probability) under climate change assumptions. The document appropriately acknowledges:

“..Analysis of the probability of certain impacts could largely depend on the ability of the GCMs to characterize that probability, which may be more subjective than the level of rigor required to support a risk-based analysis (Dessai and Hulme, 2003). In flood management, risk-based analysis is often based on probabilities derived from event frequency documented in historical records. However, the extreme events and their corresponding climate signals are the most uncertain elements of the climate change research.” Pages 2-3 and 2-4.

And;

“Extreme events are, by definition, temporally rare. Thus, even a highly detailed simulation or downscaled version of high-temporal resolution twenty-first century climate change will not generally be sufficient to evaluate changes in extreme event frequencies.” Page 2-21

The above quotes capture the current uncertainty of the science and the challenges with developing and applying predictive methods to quantify the effects of climate change on extreme precipitation events in the Central Valley. The science has not developed to the point of being able to predict with certainty the changes that climate change will have on the frequency or severity of extreme precipitation events. Because of this reality, the report authors wisely decided that an assessment tool based on some worst case assumptions concerning changes in hydrology can be used to identify areas of vulnerability if flood magnitudes and frequency were to increase in the future. They define this methodology as the “Climate Change Threshold Analysis Approach.” The method outlined in the report would identify areas or facilities of the flood system that may be more or less vulnerable to changes in future hydrology. The method is in fact a sensitivity analysis that purports to be tempered by available information from the existing flood protection system. By definition, a sensitivity analysis is not a prediction of future events, but simply an analysis of scale without any judgment as to increased or decreased levels of risk.

The proposed vulnerability assessment is a reasonable approach to understanding ways in which we could consider building flexibility into the CVFPP in the event it is later determined that climate change will affect extreme precipitation events. However, identifying areas of vulnerability is not the same thing as predicting higher or lower risk in the future. This presents a concern as to how the vulnerability information is used and with what authority the data generated is provided. Although Attachment 8k spells out the limitations of the methodology, several definitive statements are made in the main report that climate change will likely increase extreme flood events. This seems to be based on a misinterpretation of the sensitivity analysis as a prediction of future conditions under a climate change scenario. It would be more accurate to say the state of the existing science has not developed to the point of being able to quantify with certainty the effects of climate change on extreme precipitation events and the CVFPP should therefore build flexibility into the system to allow for changes in future science that may swing one way or the other in terms of the magnitude or frequency of extreme flood events.

The Pilot Study described in Section 3.3 shows both the potential and the inherent deficiencies of the methodology. The study assumes that multiples of the 100-year-flood are possible due to Climate Change. It assumes 10, 20, 30, 40, and 50% possible increases. Then it evaluates the system response to these assumptions. In parallel, it evaluates the potential of such increases by utilizing an Atmospheric River Index (Figure 3-3) to evaluate increased runoff potential. The Atmospheric River Index shows a potential increase of up to 30% because of climate change. The study then concludes:

“These results, while subject to the substantial uncertainties identified in the methodology section, confirm that inflow changes modeled in the reservoir threshold analyses are within a reasonable range.” Page 3-10

There are two basic flaws to this reasoning. The first is the Index used in Figure 3-3 is *not* an indicator of runoff; and even if it was, the increases shown in Figure 3-3 are substantially less than 50%. Secondly, a 100-year, or especially a 200-year storm (statistically derived from extrapolating historic runoff records), has most likely already been maximized in the atmospheric modeling realm; and therefore, may have very little potential to be increased due to “climate change” adjustments.

G\_CCVFCA1-18 **Other specific comments on the draft plan and draft PEIR:**

- Certain levees already improved by Three Rivers Levee Improvement Authority (the Feather River Setback and the Upper Yuba River Levee Improvement Project) are inaccurately shown as areas of concern in figure 2-1.

G\_CCVFCA1-19

- Some communities, and in particular in the San Joaquin Valley, were relying upon the plan to provide a project-specific implementable vision for achieving 200-year protection. This plan does not provide this vision, resulting in placing a significant burden on these communities to comply with legislative mandates to incorporate the plan into local land use plans, coupled with the fast-approaching 2015 compliance deadlines contained in SB 5 without a clear path in the Plan on how to achieve them,.



G\_CCVFCA1-20

- Those levees identified as urban as shown on figure 3-1 should include right-bank Feather River levees all the way north to the Thermalito Afterbay. Sutter Butte Flood Control Agency has submitted analyses to DWR showing that if these levees fail, it will cause flooding in Gridley, Biggs, Live Oak, and parts of Yuba City, areas with a combined population in the tens of thousands of people.

G\_CCVFCA1-21

- The discussion of federal crediting (the “section 104 process”) on page 4-42 needs to be updated in light of recent decisions by the Assistant Secretary of the Army.

G\_CCVFCA1-22

- The Hydrology section of the draft PEIR improperly says Section 408 (the Federal approval process) requires that improvements not cause any increase in water surface elevation. (See page 3.13-82). In fact, there is not a requirement that there be no increase.

G\_CCVFCA1-23

- The cumulative impacts section of the draft PEIR does not appear to include all of the past projects which should be considered (see section 4.3.1). For example, the West Sacramento I Street Project, the TRLIA Phase I and II projects on the Yuba River and Western Pacific Interceptor Canal, the Wheatland Levee Repair Project, the LD1 Star Bend Setback Levee, and the TRLIA Feather River Segment 1 and 3 Strengthen in Place Project are not listed, but should be

**California Central Valley Flood Control Association, Melinda Terry et al.**

***Response***

***G\_CCVFCA1-01***

DWR appreciates the commenter's participation with the CVFPP development and review.

***G\_CCVFCA1-02***

As stated in Master Response 14, the 2012 CVFPP describes the State's vision for a sustainable flood management system in the Central Valley that provides a high degree of public safety, promotes long-term economic stability, and supports restoration of compatible riverine and floodplain ecosystems. The SSIA prioritizes State investments and other activities to contribute to achieving this vision on a systemwide scale, recognizing current funding limitations.

Upon CVFPP adoption, DWR will work closely with local entities to collect on-the-ground information regarding flood risks and needs, identify potential local and regional improvement projects, assess the performance and feasibility of these projects, and develop proposals that reflect the priorities of local entities in reducing flood risks.

***G\_CCVFCA1-03***

As stated in Master Response 14, DWR will work closely with USACE and the Board in conducting post-adoption planning activities, including conducting the federal Central Valley Integrated Flood Management Study and State basin-wide feasibility studies to determine federal and State interests in implementation, respectively. The State will also partner with USACE on federal regional feasibility studies and post authorization scope-change investigations aimed at modifying the State-federal flood management system.

The State has a strong interest in coordinating and implementing integrated projects that achieve multiple benefits. Effective integration across planning efforts means that all programs and projects, when implemented, work together to achieve key goals in a cost-effective manner; are sequenced and prioritized appropriately; and do not adversely affect or interfere with intended benefits.

***G\_CCVFCA1-04***

As stated in Master Response 14, State-led feasibility studies are intended to support State decision making, regardless of the corresponding level of

federal participation. They do not necessarily cover the scope of a federal feasibility study; however, these State-led studies will be conducted to minimize, to the extent possible, additional federal study needed to determine federal participation and facilitate subsequent authorization by Congress, if appropriate.

In addition, as stated in Master Response 15, up to \$1.7 billion of additional bond funding will be available during the next 5 years for CVFPP-related projects. Use of bond funds will be prioritized based on the severity of flood risks, considering proposed project costs and benefits and contributions to basin-wide solutions (consistent with the CVFPP).

**G\_CCVFCA1-05**

As stated in Master Response 15, the Central Valley Flood Protection Act of 2008 (SB 5) does not commit the State to any specific level of flood protection, action, prioritization, or funding (see CWC Section 9603). As part of CVFPP implementation, the regional planning process will gather DWR, the Board, and local interests (flood management agencies, land use agencies, flood emergency responders, permitting agencies, environmental and agricultural interests, and other stakeholders) to develop regional plans that will include lists of prioritized projects and funding strategies for each of the nine regions identified in the CVFPP. In a parallel effort, a systemwide planning process will refine the basin-specific objectives (Sacramento and San Joaquin Basins) identified in the 2012 CVFPP.

Up to \$1.7 billion of additional bond funding will be available during the next 5 years for CVFPP-related projects. Use of bond funds will be prioritized based on the severity of flood risks, considering proposed project costs and benefits and contributions to basin-wide solutions (consistent with the CVFPP).

**G\_CCVFCA1-06**

As stated in Master Response 12, the 2012 CVFPP does not include new State policy or guidance for considering hydraulic effects of CVFPP actions such as repairing or reconstructing existing SPFC facilities; the Central Valley Flood Protection Act of 2008 (SB 5) did not require preparation of such a policy. However, the State will continue to develop policies and guidance to support SPFC repair and improvement projects through post-adoption activities, to complement existing State and federal permitting processes.

**G\_CCVFCA1-07**

As stated in Master Response 3, no target minimum level of flood protection has been established for prioritizing State investments in rural-

agricultural areas (see CWC Section 9603). However, the SSIA proposes (1) projects that maintain levee crown elevations for rural SPFC levees and provide all-weather access roads for inspection and floodfighting; (2) economically feasible projects that resolve known SPFC performance problems, in conjunction with development of criteria for rural levee repairs; (3) system elements (e.g., bypass expansion) that lower peak flood stages within some rural channels; and (4) actions to manage residual flood risks.

DWR is working with local maintaining agencies to draft guidelines for nonurban levee repair criteria. Suggestions may be presented during various elements of future implementation of the CVFPP, as described in Master Response 14; however, no change to the current version of the CVFPP was made.

***G\_CCVFCA1-08***

As stated in Master Response 17, the current science and best available information do not properly support a complete, quantitative analysis for climate change impacts on flood management. Climate change impacts and considerations have been incorporated into many recent and ongoing California resources planning studies, using varying analytical approaches. The CVFPP is the first major policy-level study with broad applications that addresses climate change for flood management in California.

Although the 2012 CVFPP does not include a complete, quantitative analysis for climate change impacts on flood management, the CVFPP does include various system elements in its climate change adaptation strategy. The system elements provide additional benefits to the regional elements, and improve the overall function and performance of the SPFC in managing large floods

***G\_CCVFCA1-09***

The comment is noted.

***G\_CCVFCA1-10***

As stated in Master Response 13, anticipated activities after adoption of the 2012 CVFPP include regional flood management planning, development of basin-wide feasibility studies, and completion of project-level proposals and environmental compliance. These efforts will engage local entities and stakeholders to help identify projects to meet local and regional needs for flood management, refine the conceptual system elements proposed in the adopted plan, and identify specific projects for construction.

**G\_CCVFCA1-11**

The comment is noted.

**G\_CCVFCA1-12**

See response to comment G\_CCVFCA1-03.

**G\_CCVFCA1-13**

See response to comment G\_CCVFCA1-03 and G\_CCVFCA1-04.

**G\_CCVFCA1-14**

See response to comment G\_CCVFCA1-05. As stated in Master Response 4, the CVFPP does not include levee design criteria for rural areas, but recognizes that the urban levee design criteria are not always practical or affordable for protecting rural areas. DWR supports future development and implementation of rural levee repair criteria in coordination with local and regional flood management agencies.

**G\_CCVFCA1-15**

See response to comment G\_CCVFCA1-06.

**G\_CCVFCA1-16**

See response to comment G\_CCVFCA1-07. As stated in Master Response 4, upon CVFPP adoption, DWR will work closely with local entities to collect on-the-ground information regarding flood risks and needs, identify potential local and regional improvement projects, assess the performance and feasibility of these projects, and develop proposals that reflect the priorities of local entities in reducing flood risks. Each regional plan will present an assessment of proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. DWR intends to provide guidance as well as technical and financial assistance to local agencies to prepare the regional flood management plans, subject to availability of funds.

**G\_CCVFCA1-17**

See response to comment G\_CCVFCA1-08.

**G\_CCVFCA1-18**

The comment is noted.

**G\_CCVFCA1-19**

As stated in Master Response 5, the 2012 CVFPP was prepared at a conceptual level. Consequently, the plan does not include detailed

floodplain mapping, data on local flood stages, or specifics about future on-the-ground projects. This information will be developed during post-adoption implementation activities. However, a great deal of information and data on Central Valley flood risks and vulnerabilities were collected as part of 2012 CVFPP development. DWR has provided much of this information in the attachments to the CVFPP and will make further information available to assist local agencies.

***G\_CCVFCA1-20***

The comment is noted.

***G\_CCVFCA1-21***

The comment is noted.

***G\_CCVFCA1-22***

The comment is noted.

***G\_CCVFCA1-23***

The comment is noted.



## CENTRAL DELTA WATER AGENCY

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April 20, 2012

# G\_CDWA1

Re: DPEIR for 2012 Central Valley Flood Protection Plan (Sch #2010102044)

Via email DPEIR comments @ water.ca.gov  
Mary Ann Hayden  
Staff Environmental Scientist

G\_CDWA1-01

The DPEIR has addressed incorporating expansions of floodplains in the Delta by way of setting back levees and creating bypasses in part as a benefit to fisheries. There is evidence indicating that such could be detrimental to salmonids some of which are endangered.

G\_CDWA1-02

### **THERE IS NO APPARENT CORRELATION BETWEEN THE AVAILABILITY OF FLOODPLAIN HABITAT IN THE DELTA AND DECLINING FISH POPULATIONS.**

The Delta was fully reclaimed by 1930 and the amount of floodplain habitat has increased rather than decreased since that time. Among other examples Frank's Tract flooded in 1938 and remains unreclaimed. Mildred Island flooded in 1983 and remains unreclaimed and Liberty Island which is in the Yolo Bypass has remained flooded since 1998. In general anadromous fish populations in the Bay Delta Estuary have declined since the 1960s with the most dramatic declines occurring since 2004. Commercial and sport fishing for salmon was prohibited in 2008 and 2009 due to such decline. The effects of increasing floodplain habitat on salmon remain uncertain. Predation, stranding and increased temperature continue as major risks.

G\_CDWA1-03 **INCREASE IN TIDAL PRISM.**

A significant additional threat occurs where such floodplain habitat is created in the tidal zone where increases in the tidal prism results in increased flood and ebb tide flows. Such increase in the tidal prism created by the flooding of Lower Liberty Island has been found to have caused juvenile salmon migrating to the ocean to be pushed from their normal Sacramento River migration route back up into the flooded portion of Lower Liberty Island thereby further exposing such fish to the risk of predation, stranding and detrimental temperatures. (See attached excerpts from "Insights into the Problems, Progress, and Potential Solutions For Sacramento River Basin Native Anadromous Fish Restoration", April 2011 by Dave Vogel).

G\_CDWA1-04 **CREATION OF FLOODPLAIN HABITAT IS NOT A SUBSTITUTE FOR FLOW.**

The available evidence and studies do not support such a substitution. The floodplain habitat which is suggested as potentially beneficial is that which is inundated by high flows for a limited period; involves a large area of water of a proper depth to help avoid predation (assumes aviary predator populations are limited); is properly drained to avoid stranding and avoids increased water temperatures detrimental to salmonids.

The Jeff Opperman Final Report for Fellowship R/SF-4 containing the picture of the fat fish and skinny fish is often shown as support for the proposition that floodplain habitat can be substituted for flow (a copy of the report is attached). The study does not put forth that conclusion but suggests “that juvenile Chinook benefit from access to floodplain habitats”. (Page 2) It is important to recognize that the test fish were caged and thus predation from birds, fish and other animals was not an issue.

G\_CDWA1-05

Stranding was down-played but admittedly not tested. The test was conducted in and along the Cosumnes River. The skinny fish were in the river swimming against the current and because they were in cages couldn't move with the current or move to quiet and more productive water. The fat fish obviously saved their energy for growth and apparently benefited from improved food availability. The report states “During high flows the river offers poor habitat and fish living in this type of habitat will tend to be displaced downstream.” High flows and displacement downstream are likely not detrimental. It is generally accepted that the salmon do well in high flow years. The return of adults (escapement) is usually higher two and one-half years after a high flow year. It is recognized that ocean conditions also play a part and may in some cases reduce escapement nullifying the benefit of high flow. The difference in food availability in the high flow channel versus in the quiet water may not be significant given the consumption of energy and lack of opportunity for the skinny fish to move to move favorable parts of the river. Displacement downstream into the cooler and more productive parts of the estuary is likely not bad for displaced salmon smolts.

G\_CDWA1-06 **FLOODPLAIN HABITAT NOT ACCOMPANIED BY HIGH FLOW DOES NOT APPEAR TO RESULT IN INCREASED CHINOOK SALMON OCEAN SURVIVAL AND MAY NOT IMPROVE SURVIVAL OF SACRAMENTO RIVER JUVENILE CHINOOK SALMON MIGRATING TO THE OCEAN.**

In the study titled “Floodplain Rearing of Juvenile Chinook Salmon: Evidence of enhanced growth and survival” by Sommer, et al. (2001), a copy of which is attached, tests were conducted in the Yolo Bypass in 1998 and 1999. The study concluded that during such years salmon increased in size substantially faster in the seasonally inundated agricultural floodplain than in the river, suggesting better growth rates. The study, however, provides: “Survival indices for coded-wire-tagged groups were somewhat higher for those released in the floodplain than for those released in the river, but the differences were not statistically significant. Growth, survival, feeding success, and prey availability were higher in 1998 than in 1999, a year in which flow was more moderate indicating that hydrology affects the quality of floodplain rearing habitat.



In the discussion the authors provide:

“Mean length increased faster in the Yolo Bypass during each study year, and CWT fish released in the Yolo Bypass were larger and had higher apparent growth rates than those released in the Sacramento River. It is possible that these observations are due to higher mortality rates of smaller individuals in the Yolo Bypass or of larger individuals in the Sacramento River; however we have no data or reasonable mechanism to support this argument.”

“Elevated Yolo Bypass survival rates are also consistent with significantly faster migration rates in 1998, the likely result of which would be reduced exposure time to mortality risks in the delta, including predation and water diversions.”

G\_CDWA1-07

In the study “Habitat Use and Stranding Risk of Juvenile Chinook Salmon on a Seasonal Floodplain” by Sommer, et al. (2004), a copy of which is attached, the authors build upon the above study with further testing in 2000 and present their analysis of ocean survival.

The author’s abstract provides:

“Although juvenile Chinook salmon *Oncorhynchus tshawytscha* are known to use a variety of habitats, their use of seasonal floodplains, a highly variable and potentially risky habitat, has not been studied extensively. Particularly unclear is whether a seasonal floodplain is a net “source” or net “sink” for salmonid production. . . Adult ocean recoveries of tagged hatchery fish indicate that seasonal floodplains support survival at least comparable with that of adjacent perennial river channels. These results indicate that floodplains appear to be a viable rearing habitat for Chinook salmon, making floodplain restoration an important tool for enhancing salmon production.

The data provided for ocean survival is as follows:

Table 1. – Number of coded wire tags recovered in the ocean and commercial fisheries for Chinook salmon released in the Yolo Bypass and Sacramento River. The total number of tagged fish released in each location for each year is shown in parentheses. The survival ration is calculated as the number of Yolo Bypass recoveries divided by the number of Sacramento River recoveries.

Release Group	1998 (53,000)	1999 (105,000)	2000 (55,000)
Yolo Bypass	75	136	27
Sacramento River	35	138	47
Survival Ration	2.14	0.99	0.57

A more complete analysis is required.

G\_CDWA1-08

Attached hereto are copies of graphs of the numbers of fish for various years taken from the AFRP website. If there is a correlation between floodplain habitat in the Delta and fish numbers, the PDEIR should explain it. The possibility that the Yolo Bypass has had a positive contribution to Sacramento River salmon in the high flow years remains unresolved. There is no apparent comparable possibility on the San Joaquin.

G\_CDWA1-09

**IT IS UNCLEAR WHETHER SHADED RIVER AQUATIC HABITAT IS GOOD FOR SPECIAL STATUS FISH.**

The PDEIR assumes that shaded river aquatic habitat is desirable for special status fish and that implementation of the USACE ETL or other disturbance would require mitigation. Your attention is called to the BDCP Draft Chapter 8 which puts forth the need to control predators by removing structures which affect flow fields and provide shade. The focus appears to be on abandoned docks, pilings and the like, however, shaded river aquatic habitat can provide the same affect on flow and provide shade. The PDEIR should address the impact of shaded river aquatic habitat on special status fish. Is it positive or negative?

G\_CDWA1-10

**THE PDEIR DOES NOT PROVIDE SUPPORTING REFERENCES FOR THE PROPOSITION THAT REPLACING NATURAL BANK SUBSTRATES WITH RIPRAP ELIMINATES LIVING SPACE AND FOOD FOR TERRESTRIAL AND AQUATIC INVERTEBRATES.**

The PDEIR concludes that such eliminates an important food source for special-status fish species. Like rocks in a natural mountain stream the irregular surface and openings between the rocks provides living space and food for both terrestrial and aquatic invertebrates. Even a casual observer should see that such living space is not eliminated. The supporting studies should be cited and discussed.

G\_CDWA1-11

**THE DPEIR FAILS TO ADDRESS THE REDIRECTION OF GROWTH FROM THE 2007 LEGISLATION TO AREAS IN THE FLOODPLAIN WHERE DEVELOPERS CAN MORE EASILY FUND AND CONSTRUCT 200 YEAR PROTECTION.**

The construction of new 200 year ring levees around individual subdivisions within existing urban levee systems and around other areas not presently protected by 200 year levees have in the past and will in the future be pursued by developers. The detrimental impact on funding of improvements to protect existing urban areas and infill needs further consideration.

G\_CDWA1-12

**THE DPEIR SHOULD INCLUDE A MORE STUDIED DISCUSSION OF POTENTIAL SEA LEVEL RISE.**

Attached hereto are data from the NOAA website. Of particular note are the differences in measured sea level rise at the Golden Gate versus that at Alameda and the variability of measurements along the Pacific Coast.

Aside from the indication that there may be no consistent fixed datum it would appear that the difference between the Golden Gate and Alameda is due to short term influences at the Golden Gate being dampened by the spreading across the Bays. There is a need for a more scientific evaluation as to how ocean sea level changes will be transmitted inland through the various bays to the Delta.

G\_CDWA1-13 **THE DPEIR SHOULD ADDRESS MORE FULLY THE INTERRELATIONSHIP OF THE VARIOUS LEVEE SYSTEMS PARTICULARLY WITH REGARD TO SEEPAGE AND WIND GENERATED WAVES.**

Removing or relocating levee systems whether by setback or otherwise has the potential of creating greater wind fetch and increasing underseepage into adjoining areas intended to be protected from flooding.

G\_CDWA1-14 I have not been able to do a more complete review of the DPEIR and submit the above as preliminary comments.

Yours very truly,



Dante John Nomellini  
Manager and Co-counsel



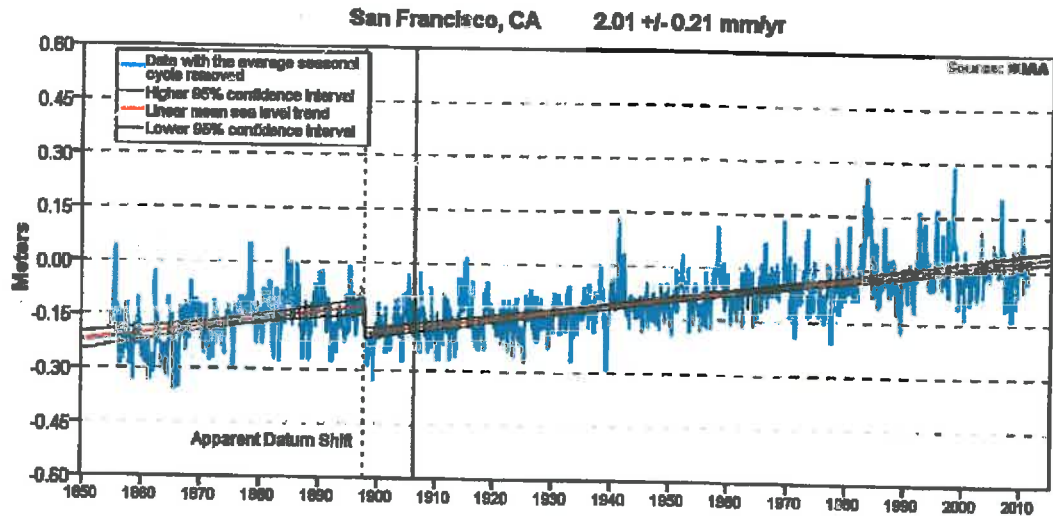
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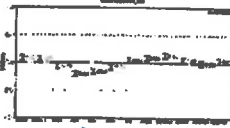
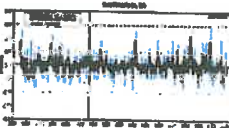
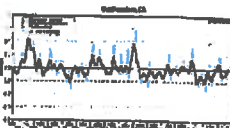
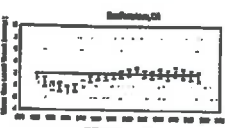
## Mean Sea Level Trend 9414290 San Francisco, California



The mean sea level trend is 2.01 millimeters/year with a 95% confidence interval of +/- 0.21 mm/yr based on monthly mean sea level data from 1857 to 2008 which is equivalent to a change of 0.66 feet in 100 years.

The plot shows the monthly mean sea level without the regular seasonal fluctuations due to coastal ocean temperatures, salinities, winds, atmospheric pressures, and ocean currents. The long-term linear trend is also shown, including its 95% confidence interval. The plotted values are relative to the most recent [Mean Sea Level datum established by CO-OPS](#). The calculated trends for all stations are available as a [table in millimeters/year](#) or a [table in feet/century](#) (0.3 meters = 1 foot).

If present, solid vertical lines indicate times of any major earthquakes in the vicinity of the station and dashed vertical lines bracket any periods of questionable data.

 <a href="#">Average seasonal cycle</a>	 <a href="#">Interannual variation for all data</a>	 <a href="#">Interannual variation since 1980</a>	 <a href="#">Variation of 50-year mean sea level trends</a>
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**Frequently Asked Questions:**

- [What is Sea Level?](#)
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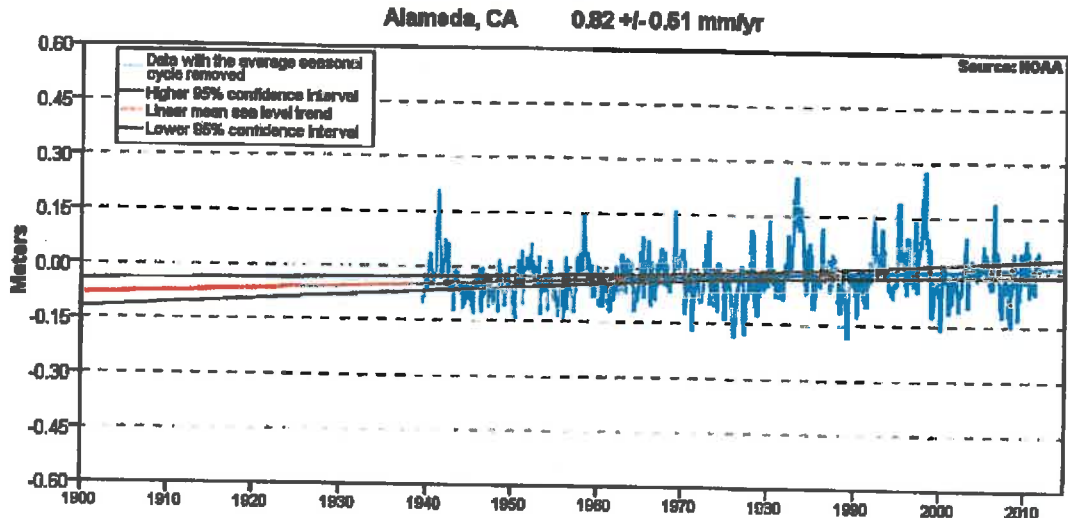
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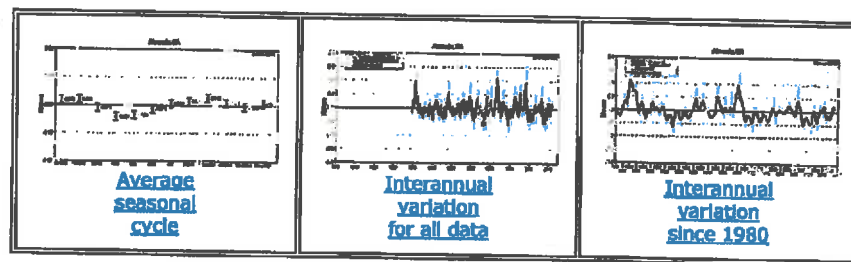
### Mean Sea Level Trend 9414750 Alameda, California



The mean sea level trend is 0.82 millimeters/year with a 95% confidence interval of +/- 0.51 mm/yr based on monthly mean sea level data from 1939 to 2006 which is equivalent to a change of 0.27 feet in 100 years.

The plot shows the monthly mean sea level without the regular seasonal fluctuations due to coastal ocean temperatures, salinities, winds, atmospheric pressures, and ocean currents. The long-term linear trend is also shown, including its 95% confidence interval. The plotted values are relative to the most recent [Mean Sea Level datum established by CO-OPS](#). The calculated trends for all stations are available as a [table in millimeters/year](#) or a [table in feet/century](#) (0.3 meters = 1 foot).

If present, solid vertical lines indicate times of any major earthquakes in the vicinity of the station and dashed vertical lines bracket any periods of questionable data.



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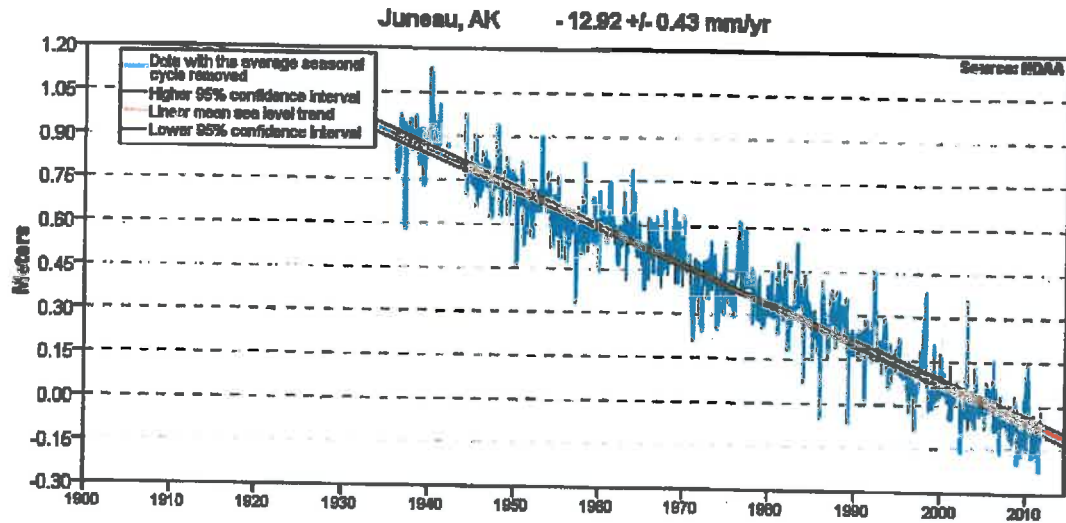
sea level trends

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main page

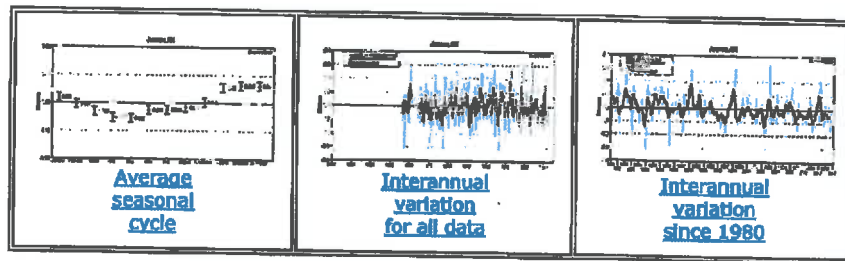
### Mean Sea Level Trend 9452210 Juneau, Alaska



The mean sea level trend is -12.92 millimeters/year with a 95% confidence interval of +/- 0.43 mm/yr based on monthly mean sea level data from 1938 to 2006 which is equivalent to a change of -4.24 feet in 100 years.

The plot shows the monthly mean sea level without the regular seasonal fluctuations due to coastal ocean temperatures, salinities, winds, atmospheric pressures, and ocean currents. The long-term linear trend is also shown, including its 95% confidence interval. The plotted values are relative to the most recent [Mean Sea Level datum established by CO-OPS](#). The calculated trends for all stations are available as a [table in millimeters/year](#) or a [table in feet/century](#) (0.3 meters = 1 foot).

If present, solid vertical lines indicate times of any major earthquakes in the vicinity of the station and dashed vertical lines bracket any periods of questionable data.



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**Linear mean sea level (MSL) trends and 95% confidence intervals in feet/century**

Station Name	First Year	Year Range	For all data to 2006		Previously Published Trends	
			MSL Trend	+/- 95% Confidence Interval	MSL Trend	+/- 95% Confidence Interval
Nawiliwili, HI	1955	52	0.50	0.19	0.50	0.24
Honolulu, HI	1905	102	0.49	0.08	0.49	0.09
Mokuoloe, HI	1957	50	0.43	0.24	0.37	0.30
Kahului, HI	1947	60	0.76	0.17	0.69	0.28
Hilo, HI	1927	80	1.07	0.12	1.10	0.13
Johnston Atoll	1947	57	0.25	0.18	0.22	0.20
Midway Atoll	1947	60	0.23	0.18	0.03	0.20
Guam, Marianas Islands	1948	46	-0.35	0.57	0.03	0.58
Pago Pago, American Samoa	1948	59	0.68	0.29	0.49	0.36
Kwajalein, Marshall Islands	1946	61	0.47	0.27	0.34	0.32
Chuuk, Caroline Islands	1947	49	0.20	0.58	0.22	0.58
Wake Island	1950	57	0.63	0.19	0.62	0.23
Bermuda	1932	75	0.67	0.15	0.60	0.19
Eastport, ME	1929	78	0.66	0.07	0.70	0.08
Bar Harbor, ME	1947	60	0.67	0.09	0.72	0.11
Portland, ME	1912	95	0.60	0.05	0.63	0.06
Seavey Island, ME	1926	76	0.58	0.10	0.57	0.11
Boston, MA	1921	86	0.86	0.06	0.87	0.07
Woods Hole, MA	1932	75	0.86	0.07	0.85	0.08
Nantucket Island, MA	1965	42	0.97	0.15	0.98	0.20
Newport, RI	1930	77	0.85	0.06	0.84	0.07
Providence, RI	1938	69	0.64	0.09	0.62	0.11
New London, CT	1938	69	0.74	0.08	0.70	0.10
Bridgeport, CT	1964	43	0.84	0.19	0.85	0.26
Montauk, NY	1947	60	0.91	0.10	0.85	0.12
Port Jefferson, NY	1957	36	0.80	0.25	0.80	0.25
Kings Point, NY	1931	76	0.77	0.08	0.79	0.09
The Battery, NY	1856	151	0.91	0.03	0.91	0.03
Sandy Hook, NJ	1932	75	1.28	0.08	1.27	0.10
Atlantic City, NJ	1911	96	1.31	0.06	1.31	0.07
Cape May, NJ	1965	42	1.33	0.24	1.27	0.34
Philadelphia, PA	1900	107	0.92	0.07	0.90	0.08
Reedy Point, DE	1956	51	1.14	0.22		
Lewes, DE	1919	88	1.05	0.09	1.04	0.11
Ocean City, MD	1975	32	1.80	0.55		
Cambridge, MD	1943	64	1.14	0.13	1.15	0.15
Chesapeake City, MD	1972	35	1.24	0.51		
Baltimore, MD	1902	105	1.01	0.05	1.02	0.05
Annapolis, MD	1928	79	1.13	0.08	1.16	0.09
Solomons Island, MD	1937	70	1.12	0.09	1.08	0.11
Washington, DC	1924	83	1.04	0.11	1.03	0.13
Kiptopeke, VA	1951	56	1.14	0.14	1.18	0.17

Colonial Beach, VA	1972	32	1.57	0.40	1.73	0.46
Lewisetta, VA	1974	33	1.63	0.34	1.59	0.50
Gloucester Point, VA	1950	54	1.25	0.15	1.30	0.17
Sewells Point, VA	1927	80	1.46	0.09	1.45	0.10
Portsmouth, VA	1935	53	1.23	0.15	1.23	0.15
Chesapeake Bay Bridge Tunnel, VA	1975	32	1.98	0.37	2.30	0.56
Oregon Inlet Marina, NC	1977	30	0.92	0.58		
Beaufort, NC	1953	54	0.84	0.14	1.22	0.41
Wilmington, NC	1935	72	0.68	0.13	0.73	0.16
Southport, NC	1933	74	0.68	0.15		
Springmaid Pier, SC	1957	50	1.34	0.25	1.70	0.31
Charleston, SC	1921	86	1.03	0.08	1.08	0.09
Fort Pulaski, GA	1935	72	0.98	0.11	1.00	0.13
Fernandina Beach, FL	1897	110	0.66	0.07	0.67	0.08
Mayport, FL	1928	79	0.79	0.10	0.80	0.12
Daytona Beach Shores, FL	1925	59	0.76	0.21		
Miami Beach, FL	1931	51	0.78	0.14	0.78	0.14
Vaca Key, FL	1971	36	0.91	0.20	0.85	0.28
Key West, FL	1913	94	0.74	0.05	0.74	0.06
Naples, FL	1965	42	0.66	0.20	0.68	0.28
Fort Myers, FL	1965	42	0.79	0.21	0.75	0.29
St. Petersburg, FL	1947	60	0.78	0.10	0.79	0.12
Clearwater Beach, FL	1973	34	0.80	0.26	0.91	0.42
Cedar Key, FL	1914	93	0.59	0.06	0.61	0.07
Apalachicola, FL	1967	40	0.45	0.29	0.50	0.38
Panama City, FL	1973	34	0.25	0.27	0.10	0.41
Pensacola, FL	1923	84	0.69	0.09	0.70	0.10
Dauphin Island, AL	1966	41	0.98	0.28	0.96	0.38
Grand Isle, LA	1947	60	3.03	0.19	3.23	0.22
Eugene Island, LA	1939	36	3.17	0.41	3.20	0.41
Sabine Pass, TX	1958	49	1.86	0.35	2.15	0.46
Galveston Pier 21, TX	1908	99	2.10	0.09	2.13	0.10
Galveston Pleasure Pier, TX	1957	50	2.24	0.27	2.42	0.34
Freeport, TX	1954	53	1.43	0.37	1.93	0.48
Rockport, TX	1948	59	1.69	0.22	1.51	0.26
Port Mansfield, TX	1963	44	0.63	0.32	0.67	0.48
Padre Island, TX	1958	49	1.14	0.25	1.13	0.36
Port Isabel, TX	1944	63	1.19	0.14	1.11	0.17
San Diego, CA	1906	101	0.68	0.07	0.71	0.07
La Jolla, CA	1924	83	0.68	0.09	0.73	0.11
Newport Beach, CA	1955	39	0.73	0.34	0.73	0.34
Los Angeles, CA	1923	84	0.27	0.09	0.28	0.10
Santa Monica, CA	1933	74	0.48	0.13	0.52	0.16
Rincon Island, CA	1962	29	1.06	0.54	1.06	0.54
Santa Barbara, CA	1973	34	0.41	0.60	0.91	0.64
Port San Luis, CA	1945	62	0.26	0.16	0.30	0.20
Monterey, CA	1973	34	0.44	0.44	0.61	0.70
San Francisco, CA	1897	110	0.66	0.07	0.70	0.09



Redwood City, CA	1974	33	0.68	1.02		
Alameda, CA	1939	68	0.27	0.17	0.29	0.21
Point Reyes, CA	1975	32	0.69	0.50	0.82	0.82
Port Chicago, CA	1976	31	0.68	0.90		
North Spit, CA	1977	30	1.55	0.52		
Crescent City, CA	1933	74	-0.21	0.12	-0.16	0.14
Port Orford, OR	1977	30	0.06	0.71		
Charleston, OR	1970	37	0.42	0.38	0.57	0.56
South Beach, OR	1967	40	0.89	0.34	1.15	0.47
Garibaldi, OR	1970	37	0.65	0.60		
Astoria, OR	1925	82	-0.10	0.13	-0.05	0.15
Toke Point, WA	1973	34	0.52	0.45	0.93	0.68
Neah Bay, WA	1934	73	-0.53	0.12	-0.46	0.14
Port Angeles, WA	1975	32	0.06	0.46	0.49	0.71
Port Townsend, WA	1972	35	0.65	0.38	0.93	0.57
Seattle, WA	1898	109	0.68	0.06	0.69	0.06
Cherry Point, WA	1973	34	0.27	0.39	0.46	0.60
Friday Harbor, WA	1934	73	0.37	0.11	0.41	0.13
Ketchikan, AK	1919	88	-0.06	0.09	-0.04	0.10
Sitka, AK	1924	83	-0.67	0.10	-0.71	0.14
Juneau, AK	1936	71	-4.24	0.14	-4.16	0.16
Skagway, AK	1944	63	-5.62	0.21	-5.47	0.27
Yakutat, AK	1979	28	-3.79	0.45	-1.89	0.17
Cordova, AK	1964	43	1.89	0.29	2.29	0.39
Valdez, AK	1973	34	-0.83	0.45	-0.11	0.65
Seward, AK	1964	43	-0.57	0.30	-0.48	0.39
Seldovia, AK	1964	43	-3.10	0.36	-3.26	0.50
Nikiski, AK	1973	34	-3.21	0.49	-3.51	0.76
Anchorage, AK	1972	35	0.29	0.51	0.91	0.75
Kodiak Island, AK	1975	32	-3.42	0.44	-3.96	0.68
Sand Point, AK	1972	35	0.30	0.43	0.02	0.60
Adak Island, AK	1957	50	-0.90	0.18	-0.86	0.23
Unalaska, AK	1957	50	-1.88	0.22	-2.11	0.28
Guantanamo Bay, Cuba	1937	35	0.54	0.26	0.54	0.26
Lime Tree Bay, Virgin Islands	1977	30	0.57	0.40		
Charlotte Amalie, Virgin Islands	1975	32	0.39	0.32	0.16	0.47
San Juan, Puerto Rico	1962	45	0.54	0.17	0.47	0.23
Magueyes Island, Puerto Rico	1955	52	0.44	0.12	0.41	0.16

**Jeff Opperman**  
**Final Report for Fellowship R/SF-4**

My CALFED fellowship (R/SF-4) had three primary research areas: (1) how native fish use California floodplains; (2) developing a method to identify and quantify a particular type of floodplain in the Sacramento Valley; and (3) a white paper for CALFED that reviews, summarizes, and synthesizes research on floodplains generally, and Central Valley floodplains specifically.

***1. Native fish and floodplains.***

For this research I collaborated with Carson Jeffres, a graduate student at UC Davis (this research was his Master's thesis). We compared the growth rates of juvenile Chinook salmon between various floodplain and riverine habitats. This study built on previous work; (1) in the Yolo Bypass that found that juvenile Chinook grew faster in the flooded Bypass than in the nearby Sacramento River and; (2) in the Cosumnes Preserve which showed that native, wild juvenile Chinook salmon appeared to use the Cosumnes floodplain for rearing when it was inundated.

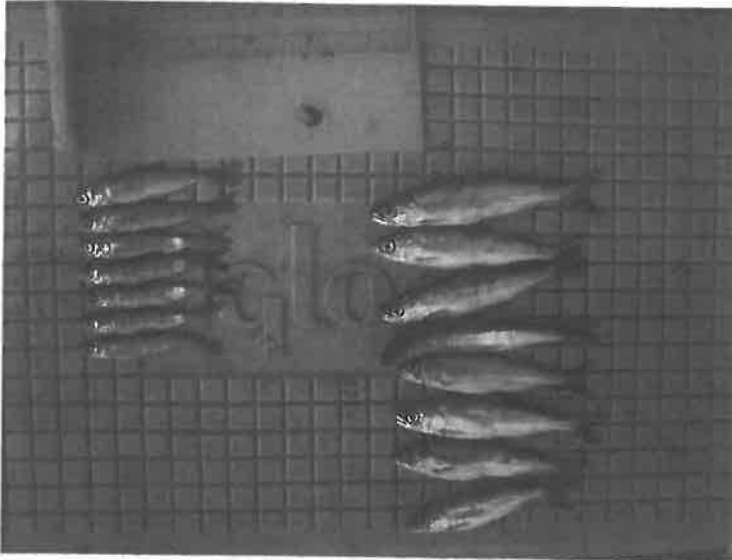
Juvenile salmon were obtained from a hatchery on the Mokelumne River and placed in enclosures within the Cosumnes River and floodplain (ten fish per enclosure). For two flood seasons (2004 and 2005), six enclosures were placed in each of three different habitat types in the floodplain and two locations in the river (30 enclosures total). Floodplain habitats included an ephemeral pond, flooded terrestrial herbaceous vegetation, and a pond that was permanent during the first year of the study and ephemeral during the second. The river locations were the river channel above the floodplain and the river channel below the floodplain.

The fish were measured at one week intervals, although measurement frequency declined during large flood events that made access difficult. In 2004 fish were measured three times over 4.5 weeks and in 2005 they were measured four times over 8 weeks. After the final measurement the fish were sacrificed and a sub-set were saved for a gut-content analysis.

In general, fish had faster growth rates in floodplain habitats than in the river. During periods of low, clear water, fish growth rates in the river site above the floodplain were comparable to those in the floodplain. However, during higher flows, with more turbid water, growth in the river above the floodplain was significantly lower than on the floodplain. Fish in the river below the floodplain, which was representative of intertidal delta habitat, were consistently low.

The main channel of the Cosumnes River, like those of many Central Valley rivers, is incised and lacks complexity. There are few side channels, backwaters, or accessible floodplain habitats (other than the Cosumnes Preserve). Thus, juvenile fish will tend to be displaced downstream during high flow events. In the Cosumnes, juvenile fish will be flushed downstream to either the intertidal delta or the floodplain. Among these two

habitats, the floodplain appears to provide significantly better habitat for rearing (Figure 1).



**Figure 1.** Juvenile Chinook on the right were reared within an enclosure within the Cosumnes River floodplain while those on the left were reared within an enclosure in the river below the floodplain (intertidal Delta habitat).

This study confirms that juvenile Chinook benefit from access to floodplain habitats. While river habitats comparable to those above the floodplain can support similar growth rates as the floodplain, this habitat is more variable. During high flows the river offers poor habitat and fish living in this type of habitat will tend to be displaced downstream. The floodplain can provide optimal growing conditions during such floods and likely offers superior habitat conditions to the downstream Delta.

The risk of fish stranding on the floodplain merits further research. However, initial research on the Cosumnes suggests that native fish tend to respond to cues that facilitate emigration from the floodplain during draining and that primarily non-native fish become stranded. This work further supports the concept that floodplain restoration can be an important strategy for restoring Central Valley salmon populations.

This research is summarized in:

Jeffres, C., J. Opperman, and P. B. Moyle. *Submitted*. Ephemeral floodplain habitats provide best growth conditions for juvenile Chinook salmon in a California river. Submitted to *Environmental Biology of Fishes*.

This work has also been presented at the following conferences:

1. Floodplain Management Association 2005
2. Society for Ecological Restoration 2005
3. Riverine Hydroecology (Stirling, Scotland) 2006

## ***2. Identifying and mapping the floodplain inundated by the Floodplain Activation Flood.***

Working in collaboration with Phil Williams and Associates (PWA), we worked to define, identify, and quantify a particular type of floodplain: that which is inundated by a Floodplain Activation Flood (FAF). The FAF is a relatively frequent, long duration, spring-time flood that has particular value for native fish and food web productivity (see text on floodplain conceptual model below for further description of a Floodplain Activation Flood).

The FAF was defined as follows:

1. occurs in two out of three years (67% exceedance probability)
2. duration of at least one week
3. occurs between March 15 and May 15.

These criteria were applied to a series of paired gauges along the Sacramento River and within the Yolo Bypass. This process derived a flood stage elevation that corresponded to the FAF criteria. This flood stage was then used to develop a water surface that was applied to topography for the Sacramento River and surrounding floodplain (from US Army Corps of Engineers' Sacramento-San Joaquin Comprehensive Study), estimating the area of floodplain inundated during the FAF.

We found that there is very little floodplain area inundated by the FAF in the current Sacramento Valley. Nearly all floodplain that corresponds to the FAF is found within the Yolo Bypass.

This work is further described in:

Philip Williams & Associates, L., and J. J. Opperman. 2006. The frequently activated floodplain: quantifying a remnant landscape in the Sacramento Valley, San Francisco, CA.

Williams, P., J. Opperman, E. Andrews, S. Bozkurt, and P. Moyle. Quantifying activated floodplain on a lowland regulated river. *In preparation for San Francisco Estuary and Watershed Science.*

## ***3. The Central Valley Floodplain White Paper***

I am continuing to work on the floodplain white paper along with my co-author, Peter Moyle. A central part of the white paper is a conceptual model for Central Valley floodplains, briefly described below.

This work has been presented at the following conferences:

1. Floodplain Management Association, 2005
2. American Geophysical Union and the North American Benthological Society, 2005
3. Society for Ecological Restoration, 2005

4. State of the Estuary Conference, 2005
5. CALFED Science Conference, 2006
6. Riverine Hydroecology (Stirling, Scotland), 2006
7. State of Washington, the Ecological Value of High Flows, 2006

Brief overview of conceptual model:

Floodplains support high levels of biodiversity and are among the most productive ecosystems in the world. They provide a range of ecosystem services to human society, including storage and conveyance of flood flows, groundwater recharge, open space, recreational opportunities, and habitat for a diversity of species, many of them of economic importance. Among the world's ecosystem types, Costanza et al. (1997) ranked floodplains second only to estuaries in terms of the ecosystem services provided to society. In the Central Valley, the most important ecosystem services provided by floodplains include reduction of flood risk and habitat for numerous species, including commercially and recreationally valuable species (e.g., chinook salmon and waterfowl) and for endangered species. Recent research has demonstrated that floodplains provide necessary spawning habitat for the Sacramento splittail, an endemic minnow (Sommer et al. 1997) and that juvenile chinook salmon grow faster on floodplains than in main-stem river channels (Sommer et al. 2001b) (Figure 1). Productivity from floodplains can be exported to the Sacramento-San Joaquin Delta, where food limitation is likely one of the factors contributing to the decline of fish species (Jassby and Cloern 2000, Schemel et al. 2004). Further, in places such as the Yolo Bypass, ecologically valuable floodplains can be compatible with productive agriculture (Sommer et al. 2001a).

Recognizing these valuable services, state and federal agencies have expressed policy goals to restore floodplains in the Central Valley (CALFED Bay-Delta Program 2000). Further, flood management projects in the Central Valley now generally include a floodplain restoration component. To guide these restoration efforts, we convened a floodplain working group, composed of floodplain experts drawn from academia, agencies, NGOs, and the private sector, to define ecologically functional floodplains. This group described three primary components of ecologically functional floodplains:

- **Connectivity** between river and floodplain.
- **Hydrological variability**
- **Sufficient geographic scale** for associated ecological benefits to be meaningful on a system- or population-scale.

We developed a conceptual model of floodplain processes based on the scientific literature, our collective experiences studying floodplains, and guidance from the floodplain working group (Figure 2). This conceptual model illustrates the linkages between physical and biological processes in floodplains and can be used to inform floodplain restoration projects.

### ***Organization of the conceptual model.***

A diverse range of flows influence floodplain geomorphic and ecological processes, ranging from flows below bankfull to large, rare, and highly erosive floods. Numerous aspects of these flows have geomorphic and ecological significance, including magnitude, frequency, duration, rates of change, and seasonality, as well as antecedent conditions on the floodplain. To simplify, our conceptual model focuses on three types of 'representative floods,' characterized by their frequency and magnitude, which are found in the blue boxes in the Hydrology portion of the model. These floods perform geomorphic work, described in the brown-outline boxes in the Geomorphology portion of the model. Hydrologic and geomorphic processes create the conditions for Ecosystem Responses and Processes to occur (green-outlined boxes). The Ecosystem Responses and Processes produce Ecological Benefits, the magnitudes of which are influenced by the geographic scale of floodplain. Two representative floods, the Floodplain Activation Flood and the Floodplain Reorganization Flood are illustrated in Figures 2 and 3 and described below.

### **Two representative floods**

***Floodplain Activation Flood.*** The floodplain activation flood (FAF) is a small-magnitude flood that occurs relatively frequently (e.g., almost every year) (Figure 3). The FAF can be further defined in terms of seasonality and duration—for example a flood that lasts at least one week and occurs in the Spring. The following article by Betty Andrews defines a FAF in terms of frequency, season, and duration and then describes a process to map the floodplain that corresponds to the FAF in the Sacramento Valley. A long duration flood produces characteristic ecological benefits such as habitat for native fish spawning and rearing (Figure 1) and food web productivity. The duration of the flood is important as these processes cannot occur during a short event. The seasonality of the flood also influences which ecological processes occur (see the temporal scale bar (Winter Late spring) in one of the ecological process boxes). The importance of duration and seasonality for a FAF is indicated by the question mark adjacent to the flood occurring in late January on the hydrograph in Figure 2 (a short, winter-time flood). Because floodplains can remain inundated for a period of time after the loss of direct connection with river flows, a series of short connections can also function as a floodplain activation flood.

***Floodplain Reorganization Flood.*** The floodplain reorganization flood is a greater magnitude flood that occurs less frequently (Figure 3). This higher energy flood produces geomorphic work including extensive erosion and deposition on the floodplain which creates heterogeneous floodplain topography. In turn, these dynamic events and heterogeneous topography create a diverse ecosystem with vegetation patches of varying age, species composition and structure, and floodplain water bodies of varying successional stage and connectivity to the river. The ecosystem processes that occur during a Floodplain Activation Flood take place within the mosaic of habitat features created during Floodplain Reorganization Floods.

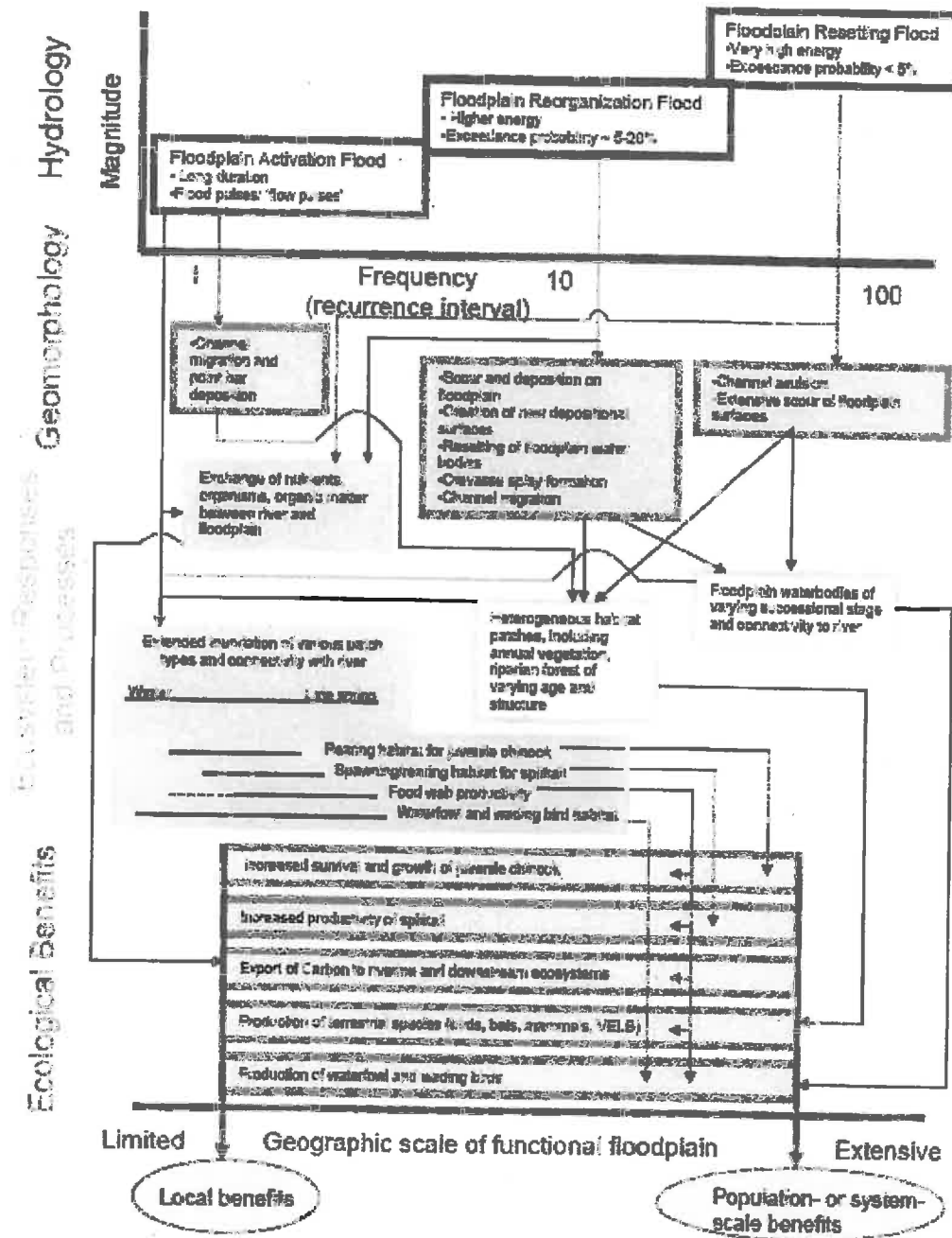
### **Conclusions**

The model illustrates the importance of hydrological variability for an ecologically functional floodplain. For example, a floodplain that rarely is inundated by a Floodplain

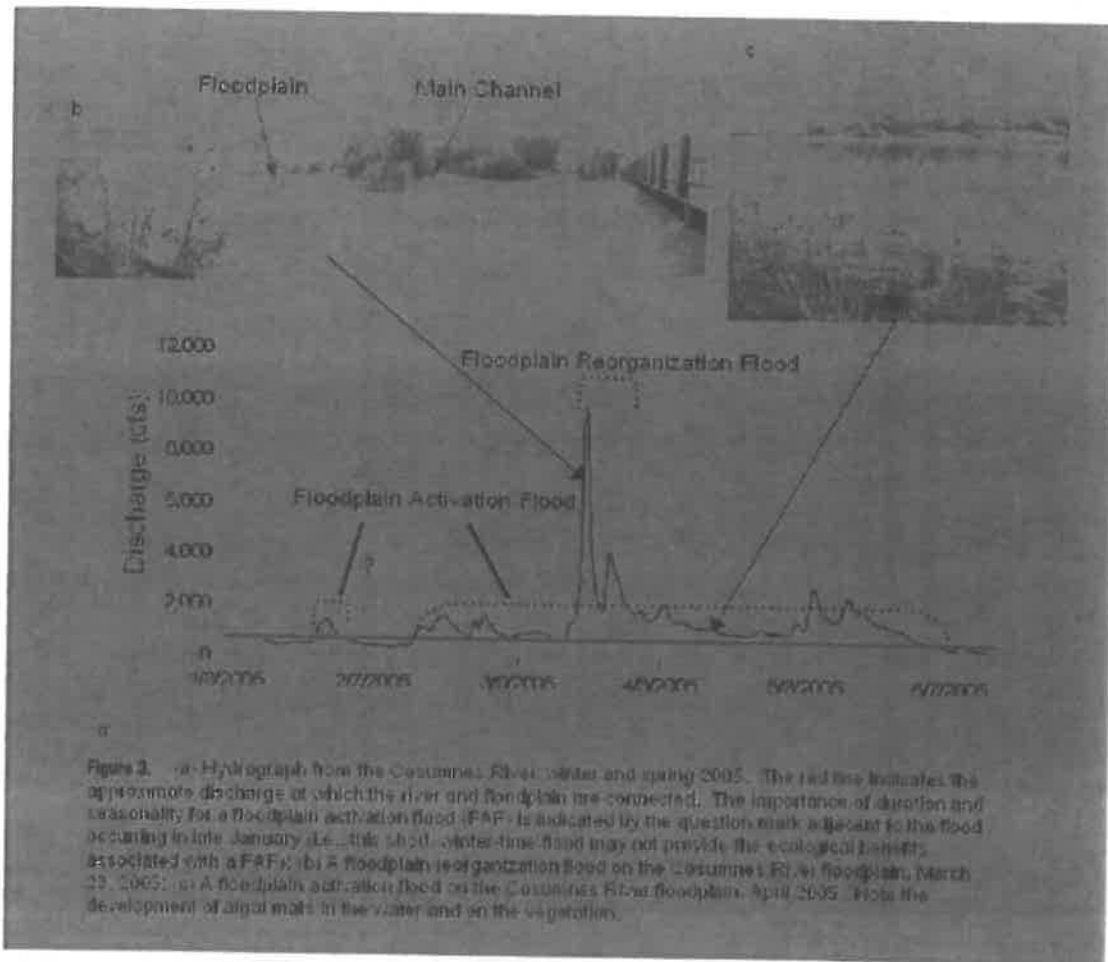
Activation Flood will not produce the ecological benefits of food web productivity or spawning and rearing habitat for native fish. A floodplain that is not subject to Floodplain Reorganization Floods will not maintain the mosaic of habitats (e.g., vegetation and water bodies of varying successional stages) that help support floodplain biodiversity. Therefore, floodplain restoration projects should not only focus on reintroducing connectivity between rivers and floodplains. Floodplain managers should also ask the following questions about this connectivity: how often, for how long, in what season, and of what magnitude? The answers to these questions will strongly influence the range of ecological benefits that the restored floodplain can provide.

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Figure 2. Floodplain Conceptual Model







**Insights into the  
Problems, Progress, and Potential Solutions  
for Sacramento River Basin Native Anadromous Fish Restoration**



**Spring-Run Chinook Salmon in Mill Creek, California (Photo by Dave Vogel)**

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**Northern California Water Association  
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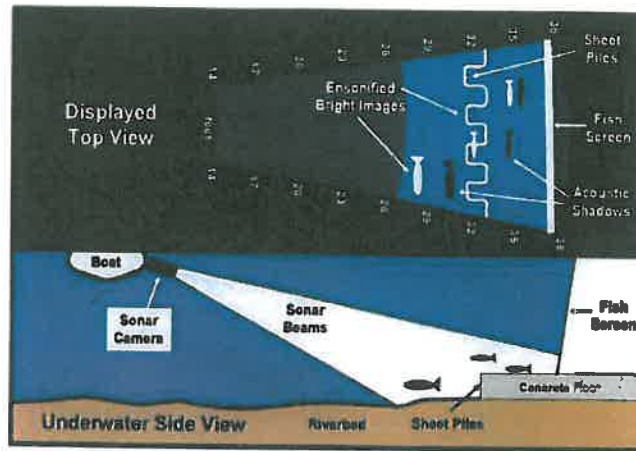


Figure 60. Schematics of DIDSON™ imaging at the base of a flat-plate fish screen. Bottom diagram shows orientation of sonar beams from the acoustic camera off the side of a boat and submerged objects at the fish screens. Top diagram shows the resultant corresponding sonar imaging of objects ensonified with acoustic shadows from the objects. (from Vogel 2008b)

From 1996 through 2010, Natural Resource Scientists, Inc. conducted 22 separate research projects on juvenile salmon (including four studies of predatory fish) in the Delta using acoustic or radio telemetry as a means to gain an improved understanding of fish movements and mortality (Vogel 2010a). The reason juvenile salmon telemetry studies were initiated in the Delta was to acquire detailed data on fish behavior, fish route selection through complex channels, and estimate fish survival in discrete reaches. Past efforts using traditional coded-wire tagging could not answer those critically important questions. Research findings from the telemetry investigations indicate that smolt survival assumptions and models must incorporate these new conclusions to avoid misinterpretation of data and improve quantitative estimates of fish survival and movements (Vogel 2010a).

The first successful use of telemetry on juvenile salmon in the Central Valley was conducted by Natural Resource Scientists, Inc. on behalf of EBMUD in 1996 and 1997. At that time, the specific behavior of juvenile salmon in the Delta was largely unknown. The initial studies quickly determined that the fish did not move as a school, but instead, dispersed, exhibiting a wide range in migratory behaviors in the complex Delta environment. Salmon moved many miles back and forth each day with the ebb and flood tides and the side channels (where flow was minimal) were largely unused. Site-specific hydrodynamic conditions present at flow splits when the fish arrived had a major affect in initial route selection. Importantly, some of the salmon were believed to have been preyed upon based on very unusual behavior patterns (Vogel 2010a).

Subsequent, additional juvenile salmon telemetry studies were conducted by Natural Resource Scientists Inc. on behalf of the USFWS and CALFED in the north Delta (Vogel 2001, Vogel 2004). Triangulating radio-tagged fish locations in real time (Figure 61) clearly demonstrated

how juvenile salmon move long distances with the tides and were advected into regions with very large tidal prisms, such as upstream into Cache Slough and into the flooded Prospect and Liberty Islands (Figure 62). During the studies, it was determined that some radio-tagged salmon were eaten by predatory fish in northern Cache Slough, near the levee breaches into flooded islands (discussed below). Also, monitoring telemetered fish revealed that higher predation occurred in Georgiana Slough as compared to the lower Sacramento River (Figure 63). As discussed previously, past coded-wire tagging studies found that salmon released into northern Georgiana Slough were found to have a higher mortality rate than fish released downstream of the slough in the Sacramento River (Brandes and McLain 2001).

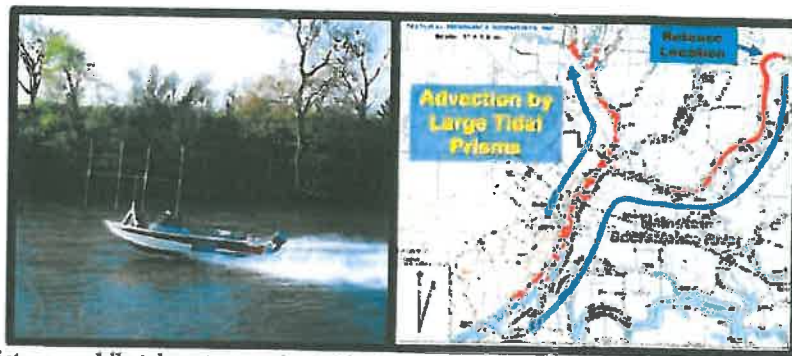


Figure 61. Left picture, mobile telemetry conducted in the north Delta. Photo by Dave Vogel.  
 Figure 62. Right picture, telemetered locations of approximately 100 radio-tagged salmon smolts released in the lower Sacramento River near Ryde (data from Vogel 2001 and Vogel 2004).

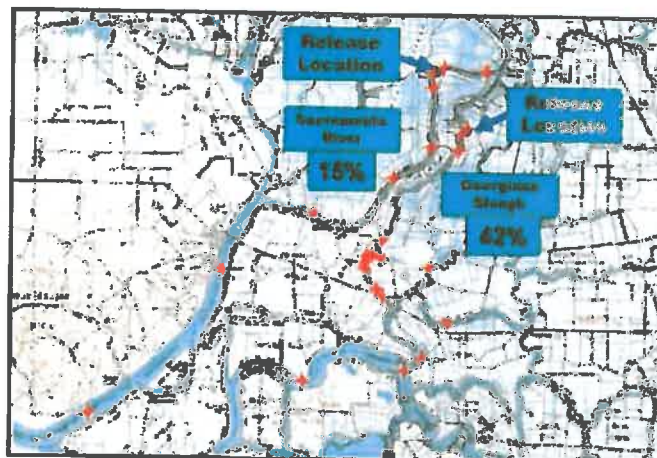
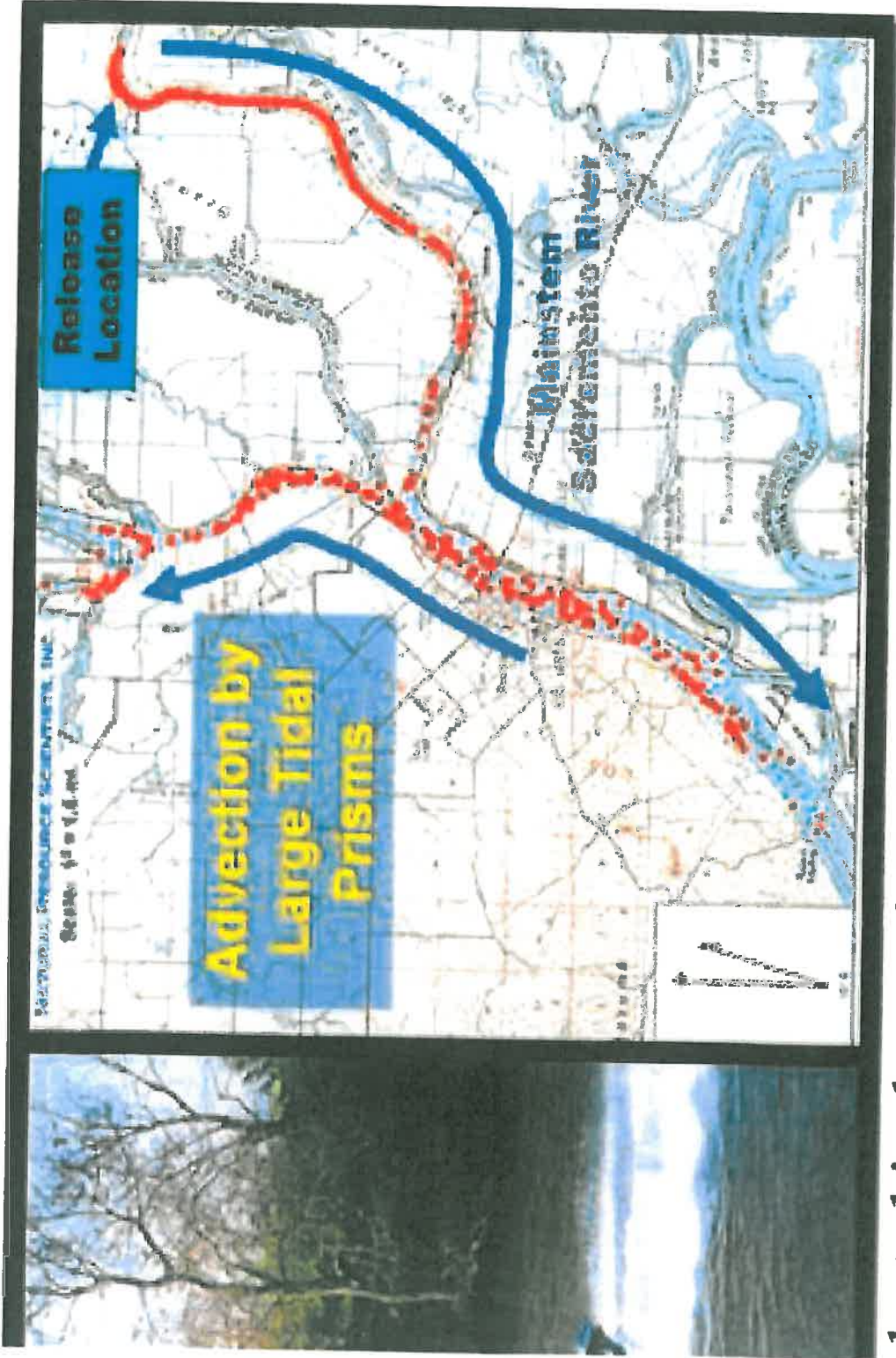


Figure 63. Estimated mortality rate for groups of radio-tagged salmon released at two locations in the north Delta and locations where radio-tagged salmon smolts were detected to have been preyed upon (Vogel 2001, Vogel 2004).

More recently, a 2007 study conducted by releasing acoustic-tagged juvenile salmon in the San Joaquin River found 116 motionless juvenile salmon transmitters in the lower San Joaquin River near the Stockton Waste Water Treatment Plant and a nearby bridge (Figure 64) (Vogel 2007b). This was an all-time record for the largest number of dead radio- or acoustic-telemetered juvenile



ducted in the north Delta. Photo by Dave Vogel.  
is of approximately 100 radio-tagged salmon smolts released in the

vegetation at some sites in the Delta and water clarity. Increased water clarity for sight predators such as black bass and striped bass would presumably favor predatory fish over prey (e.g., juvenile salmon). Fewer native fish species are found in *Egeria* stands compared to introduced fish species (Grimaldo and Hymanson 1999). Additionally, it has been hypothesized that high densities of *Egeria* in portions of the Delta may restrict juvenile salmon access to preferred habitats, forcing salmon to inhabit deep water or channel areas where predation risks may be higher (Grimaldo *et al.* 2000).

During recent years, there has been an emphasis to reclaim or create shallow, tidal wetlands to assist in re-creating the form and function of ecosystem processes in the Delta with the intent of benefitting native fish species (Simenstad *et al.* 1999). Among a variety of measures to create such wetlands, Delta island levees either have been breached purposefully or have remained unrepaired so the islands became flooded. A recent example is the flooding of Prospect Island which was implemented under the auspices of creating shallow water habitat to benefit native fish species such as anadromous fish (Christophel *et al.* 1999). Initial fish sampling of the habitat created in Prospect Island suggested the expected benefits may not have been realized due to an apparent dominance of non-native fish (Christophel *et al.* 1999). Importantly, a marked reduction of sediment load to the Delta in the past century (Shvidchenko *et al.* 2004) has implications in the long-term viability of natural conversion of deep water habitats on flooded Delta islands into shallow, tidal wetlands. The very low rates of sediment accretion on flooded Delta islands indicate it would take many years to convert the present-day habitats to intertidal elevations which has potentially serious implications for fish restoration (Nobriga and Chotkowski (2000) due to likely favorable conditions for non-salmonid fish species that can prey on juvenile salmon. Studies of the shallow water habitats at flooded Delta islands showed that striped bass and largemouth bass represented 88 percent of the individuals among 20 fish species sampled (Nobriga *et al.* 2003).

There have likely been significant adverse, unintended consequences of breaching levees in the Delta. There is a high probability that site-specific conditions at the breaches have resulted in hazards for juvenile anadromous fish through the creation of favorable predator habitats. The breaches have changed the tidal prisms in the Delta and can change the degree in which juvenile fish are advected back and forth with the tides (Figure 61; previously discussed). Additionally, many of the breaches were narrow which have created deep scour holes favoring predatory fish. Sport anglers are often seen fishing at these sites during flood or ebb tides. Breaching the levees at Liberty Island is an example (Figure 72 and 73). Recent acoustic-tagging of striped bass in this vicinity confirmed a high presence of striped bass (Figure 74, D. Vogel, unpub. data).



Figure 72. Liberty Island in the north Delta before and after flooding.



Figure 73. Liberty Island in the north Delta before and after flooding showing locations of narrow breaches in the levee.



Figure 74. Locations (squares) where predatory striped bass were acoustic-tagged with transmitters during the winter of 2008 – 2009 in the north Delta near Liberty Island (D. Vogel, unpublished data).

## Habitat Use and Stranding Risk of Juvenile Chinook Salmon on a Seasonal Floodplain

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**Abstract.**—Although juvenile Chinook salmon *Oncorhynchus tshawytscha* are known to use a variety of habitats, their use of seasonal floodplains, a highly variable and potentially risky habitat, has not been studied extensively. Particularly unclear is whether a seasonal floodplain is a net “source” or a net “sink” for salmonid production. To help address this issue, we studied salmon habitat use in the Yolo Bypass, a 24,000-ha floodplain of the Sacramento River, California. Juvenile salmon were present in the Yolo Bypass during winter–spring; fish were collected in all regions and substrates of the floodplain in diverse habitats. Experimental releases of tagged hatchery salmon suggest that the fish reared on the floodplain for extended periods (mean = 33 d in 1998, 56 d in 1999, and 30 d in 2000). Floodplain rearing and associated growth are also supported by the significantly larger size of wild salmon at the floodplain outlet than at the inlet during each of the study years. Several lines of evidence suggest that although the majority of young salmon successfully emigrated from the floodplain, areas with engineered water control structures had comparatively high rates of stranding. Adult ocean recoveries of tagged hatchery fish indicate that seasonal floodplains support survival at least comparable with that of adjacent perennial river channels. These results indicate that floodplains appear to be a viable rearing habitat for Chinook salmon, making floodplain restoration an important tool for enhancing salmon production.

A large downstream movement of fry to provide dispersal to rearing areas is typical of ocean-type Chinook salmon *Oncorhynchus tshawytscha* (Healey 1991). Rearing areas include channel and off-channel habitat in natal and nonnatal streams and their estuaries (Bjornn 1971; Kjelsen et al. 1982; Levy and Northcote 1982; Swales et al. 1986; Swales and Levings 1989; Healey 1991; Shreffler et al. 1992). Recently, Sommer et al. (2001b) observed that juvenile Chinook salmon also live on seasonal floodplains. Large rivers and streams typically have dynamic floodplains varying in size from several to thousands of hectares, unless their channels are heavily confined by topography (e.g., streams at high elevation or confined by canyons or levees). Floodplains are known to be of major importance to aquatic ecosystems in most regions; large rivers typically favor the development of a fauna adapted to colonize this habitat (Welcomme 1979; Junk et al. 1989; Sparks 1995). As a result, it is reasonable to expect dispersing salmonid fry show some ability to use seasonal habitat. In support of this hypothesis, Sommer et al. (2001b) reported that food resources and water temperatures on the seasonal floodplain of a large river were superior to those in an adjacent perennial channel,

resulting in enhanced growth rates of young salmon. Despite some evidence that enhanced growth on the floodplain improved fry–smolt survival in the estuary, Sommer et al. (2001b) did not address any effects on adult production.

Intuitively, rearing in seasonal floodplains or intermittent streams seems risky because these habitats are among the most dynamic on earth (Power et al. 1995). It is still unknown whether seasonally dewatered habitats are a net “source” or a “sink” for salmonid production relative to production in permanent stream channels (Brown 2002). In particular, the high degree of seasonal flow fluctuation characteristic of floodplain habitat could cause major stranding events and increase mortality rates of young salmon (Bradford 1997; Brown 2002). For resident taxa in intermittent streams, the benefits of very large flow fluctuations appear to outweigh costs associated with a variable environment (Spranza and Stanley 2000). This issue continues to be a key concern for regulatory agencies that evaluate off-channel restoration projects or proposed flow fluctuations for possible effects on fishes (Brown 2002; Bruce Oppenheim, NOAA Fisheries, personal communication).

Here, we describe spatial and temporal trends in juvenile Chinook salmon habitat use and stranding in a large California river floodplain. Our study was conducted in the Yolo Bypass, the primary floodplain of the Sacramento River, the major pro-

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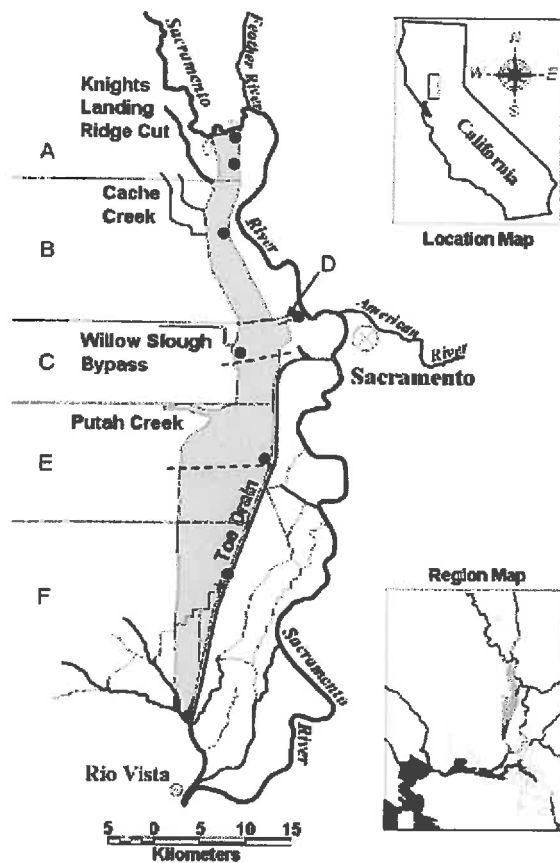


FIGURE 1.—Location of Yolo Bypass in relation to the San Francisco Bay–Delta and its tributaries. Fremont Weir is the upper (northern) edge of the Yolo Bypass. The major regions of the floodplain are delineated from north to south and correspond to the following codes: (A) Fremont Weir; (B) Cache Creek sinks; (C) Yolo Bypass Wildlife Area; (D) Sacramento Bypass; (E) Putah Creek Sinks; and (F) Liberty Island. The sampling locations are identified as follows: beach seine sites (solid circles); screw trap (star); and purse seine transects (dotted lines).

ducer of salmon in the San Francisco estuary (Figure 1). Because the Yolo Bypass can convey 75% or more of the total flow from the Sacramento River basin (Sommer et al. 2001a), this floodplain can be expected to be a migratory pathway for a substantial number of juvenile Chinook salmon. A major objective of our study was to collect basic information about the timing, duration, and habitat use of salmon on floodplains. We hoped that these data would provide insight into whether a floodplain is a net source (i.e., with rearing benefits) or a net sink (i.e., with high mortality because of stranding or predation) for salmon populations. The major hypotheses evaluated were as follows: (1) salmon occur in all major habitat types and

geographic regions; (2) floodplains provide rearing habitat for salmon and are not simply a migration corridor; and (3) stranding of juvenile salmon does not have a major population-level effect on survival of the fish that use floodplain habitat. We addressed these hypotheses by sampling wild fish throughout the floodplain, experimentally releasing tagged fish, and using hydrologic modeling and measurements of physical conditions to describe how habitat varied over the study period.

### Study Area

The San Francisco Estuary and its two component regions, Sacramento–San Joaquin Delta and downstream bays (Figure 1), make up one of the largest estuaries on the Pacific coast of North America. Major changes to the system have included diking and isolation of about 95% of the wetlands, introduction of exotic species, channelization, sediment inputs from hydraulic mining, and discharge of agricultural and urban chemicals (Nichols et al. 1986; Kimmerer 2002). The Estuary receives most freshwater via the Delta, which drains approximately 100,000 km<sup>2</sup>. Most precipitation occurs upstream of the Delta during winter and spring, resulting in a greater than 10-fold seasonal range of daily freshwater flow into the estuary. However, the hydrograph is substantially altered by dams on each of the major rivers. Peak flow pulses typically occur during winter, but dam operations can reduce the magnitude of the pulses, particularly in dry years, when much of the inflow is captured behind reservoirs (Mount 1995; Kimmerer 2002). The historically prominent spring flow pulse from snowmelt is at present muted except during heavy, late-season storms. For the past several decades, much of the spring snowmelt has been stored in reservoirs and released during summer and autumn, periods of historically lower flow. As much as 65% of the net Delta flow during summer and autumn is diverted from the channels by two large water diversions (the State Water Project and the Central Valley Project); additional water is diverted by 2,200 pumps and siphons for irrigation (Kimmerer 2002).

The 24,000-ha Yolo Bypass is the primary floodplain of the Delta (Sommer et al. 2001a). The majority of the floodplain is leveed to protect surrounding cities from floodwaters, but levees confine flow through the bypass only under very high flow events. The Yolo Bypass currently floods an average of every other year, typically under high-flow periods in winter and spring. The Yolo Bypass has a complex hydrology, with inundation possible

from several different sources. The floodplain typically has a peak inundation period during January–March but can flood as early as October and as late as June. The primary input to the Yolo Bypass is through Fremont Weir in the north, which conveys floodwaters from the Sacramento and Feather rivers. During major storm events (e.g.,  $>5,000 \text{ m}^3/\text{s}$ ), additional water enters from the east via the Sacramento Weir, adding flow from the American and Sacramento rivers. Flow also enters the Yolo Bypass from several small streams on its western margin, including Knights Landing Ridge Cut, Cache Creek, and Putah Creek. During much of the winter, water-suspended sediment levels in the Yolo Bypass and Sacramento River are high, generally resulting in secchi depths of less than 0.25 m. However, hydraulic residence times are typically longer in the Yolo Bypass than in the Sacramento River (Sommer et al. 2004). Floodwaters recede from the northern and western portions of the bypass along relatively even elevation gradients of 0.09% west–east and 0.01% north–south into a perennial channel on the eastern edge of the Bypass; they then rejoin the Sacramento River near Rio Vista. The majority of the Yolo Bypass is at present managed for wildlife in a mosaic that includes riparian, wetland, upland, and perennial pond habitats; however, a dominant land use during the past two decades, agriculture has decreased in recent years because of habitat restoration activities.

Our data collection focused on the fall-run juvenile Chinook salmon, currently the numerically dominant race in the Sacramento Valley (Yoshiyama et al. 2000). There are four races of Chinook salmon in the Sacramento Valley: winter, spring, late-fall, and fall-run. Like many other native fish, Chinook salmon in the San Francisco estuary and its tributaries have been adversely affected by such factors as habitat loss, water diversions, and species introductions (Bennett and Moyle 1996); as a result, the Sacramento River winter and spring run Chinook salmon are protected under the Federal Endangered Species Act. The typical life history pattern is for young fall-run salmon fry (approximately 35–70 mm fork length) to migrate from the tributaries during winter and spring to the estuary (Brandes and McLain 2001).

### Methods

*Physical habitat.*—Because seasonal hydrologic variability is a key characteristic of floodplain habitat, we reasoned that detailed data on changes in physical habitat would be necessary to evaluate

the responses of young salmon. Daily flow data were obtained from gauging stations in the floodplain, and temperature data were collected using continuous temperature recorders (Sommer et al. 2001b). However, the vast area of Yolo Bypass made it impractical to directly measure other parameters, such as depth and surface area. As an alternative, we used a hydrologic model to estimate these parameters (Sommer et al. 2004). To summarize, the model treated Yolo Bypass as a “reservoir” described by (1) basin geometry and (2) flow and stage time series. The Yolo Bypass floodplain geometry was developed from 200 cross-sections with data collected at 300-m intervals by standard rod and level survey techniques. Mean daily stage and flow data were obtained from five gauging stations in the Yolo Bypass. For each date in the time series, we used linear interpolation between the gauging stations to estimate the stage at each cross-section. The estimated stage value was then used to calculate conveyance characteristics of each cross-section: area, width, and wetted perimeter. The daily results for each cross-section were used to estimate total surface area and mean depth. The large scale of the study reach did not allow validation of the depth estimates. As a partial validation of the model, Sommer et al. (2004) estimated total inundated area for the Yolo Bypass by using aerial photographs on days when the floodplain was inundated (February 8 and March 2, 1998) and when the floodplain was draining (April 28, 1998). To provide additional information about areas where fish stranding and consequent losses could occur, we estimated the portion of the area that was isolated ponds versus inundated area that was actively draining to the Delta (i.e., perennial channels and adjacent inundated area) on April 28, 1998.

*Fish habitat use.*—We used beach seine sampling to examine which regions and substrates of the floodplain were used by young salmon (hypothesis 1). During January through April of each year, a 15-m seine (3.2-mm mesh) was used to sample six regions of the Yolo Bypass (Figure 1). Fixed stations were used in each region during flooded periods. After floodplain drainage, samples were collected randomly within each region. For all periods, the primary substrate type of the habitat (sand, mud, gravel, pavement, or vegetation), fish species and size, and an estimate of the surface area swept by the seine were recorded. Habitat use during flood events was summarized in terms of the percentage of samples that contained salmon for each region and substrate type.

To provide additional information about habitat use, we conducted purse seine sampling along two transects (Figure 1). This sampling, performed in 1998 when the Yolo Bypass flow was relatively high ( $>850 \text{ m}^3/\text{s}$ ), used purse seines ( $30.5 \text{ m} \times 4.6 \text{ m}$ , 4.75-mm mesh) set from a jet boat. Purse seining was conducted at 1–2 transects up to five times weekly, depending on hydrology. Hauls were made at random points in each of three habitat types (riparian, agricultural fields, and wetlands), the boundaries of which were established from aerial photographs taken before the Bypass was inundated. In the case of riparian habitat, hauls were made in clearings adjacent to trees to avoid snagging. We also recorded transect side (east or west half) for each haul because the western side of the Yolo Bypass was shallower and flow was dominated by inputs from westside streams rather than from Fremont or Sacramento weirs (Sommer et al. 2004). Most of these hauls were performed in areas exposed to at least a modest current. Additional limited paired sampling was conducted to examine possible differences between areas with and without velocity refuges. Low-velocity habitats sampled included downstream edges of levees, islands, and clusters of trees. Water velocities in randomly selected areas were approximately 0–0.05 m/s compared with greater than 0.33 m/s in adjacent exposed areas. Water depths were similar for each sampling pair. Differences in salmon densities for each habitat type were examined by using a Kruskal–Wallace test. A randomization  $t$ -test with 1,000 iterations (Haddon 2001) was used to compare salmon density on the east and west sides of the floodplain.

*Migration trends.*—To examine temporal trends in salmon migration through the floodplain (hypotheses 2 and 3), we operated a rotary screw trap (EG Solutions, Corvallis, Oregon) near the base of the Yolo Bypass during each study year. This technique was intended to provide an indication of the timing and duration of migration, rather than an absolute measure of the number of salmon emigrating the floodplain. During much of the sampling period the inundated width of the floodplain was 1–5 km, an area we considered too large for the traditional mark–recapture evaluations required to measure trap efficiency and total emigration (Roper and Scarnecchia 1996). A 1.5-m-diameter trap was used for the first 3 weeks of sampling in February 1998, after which a 2.4-m trap was used for all other sampling. We operated traps as often as 7 days each week, the daily effort varying from 1 to 24 h, depending on debris load

and safety considerations. Fish number and size were recorded in all years. In 1998, young salmon were classified as fry (prominent parr marks) or transitional fish/smolt (faded parr marks, silver appearance).

*Floodplain residence time and growth.*—We used experimental releases of salmon with coded wire tags (CWTs) as our primary method to evaluate fish residence time on the floodplain (hypothesis 2). Fry (mean size = 57 mm fork length) from the Feather River Fish Hatchery (Figure 1) were tagged by using coded-wire half tags (Northwest Marine Technologies) and released in the Yolo Bypass below the Fremont Weir on March 2, 1998 (53,000 fry); February 11, 1999 (105,000 fry); and February 22, 2000 (55,000 fry). We assessed residence time in the Yolo Bypass from recoveries of tagged fish in the screw trap at the base of the floodplain.

We also examined, using the previously described beach seine data, whether there was evidence of long-term rearing of wild salmon in the floodplain. We compared the slopes of weekly fork length measurements for the two northern beach seine regions (“North”) to the southernmost region (“South”), using a generalized linear model (GLM) with a Poisson distribution and log link variance function. We reasoned that major significant differences between the sizes of fish in the two areas provided evidence of extended rearing and growth of fish in the floodplain.

*Salmon survival and stranding.*—We used several independent data sources to examine whether salmon successfully emigrated from the floodplain (hypothesis 3). First, we compared survival of each of the Yolo Bypass CWT hatchery-reared salmon release groups with the survival of parallel CWT groups containing the same number of fish released into the Sacramento River (Sommer et al. 2001b). Recapture rates at the smolt stage of the 1998 and 1999 release groups had previously been analyzed by Sommer et al. (2001b); in the present study, we evaluated adult recoveries in the commercial and recreational ocean fisheries through 2003. Second, we examined stranding by using beach seine data (described previously) collected within a few weeks after the Sacramento River stopped flowing into the Yolo Bypass. Densities of salmon were compared with a randomization  $t$ -test (Haddon 2001) for (1) isolated earthen ponds (2) perennial channels, and any sites immediately adjacent to these water sources. The results for all years were pooled because of relatively low sample sizes for individual years. Data for each year

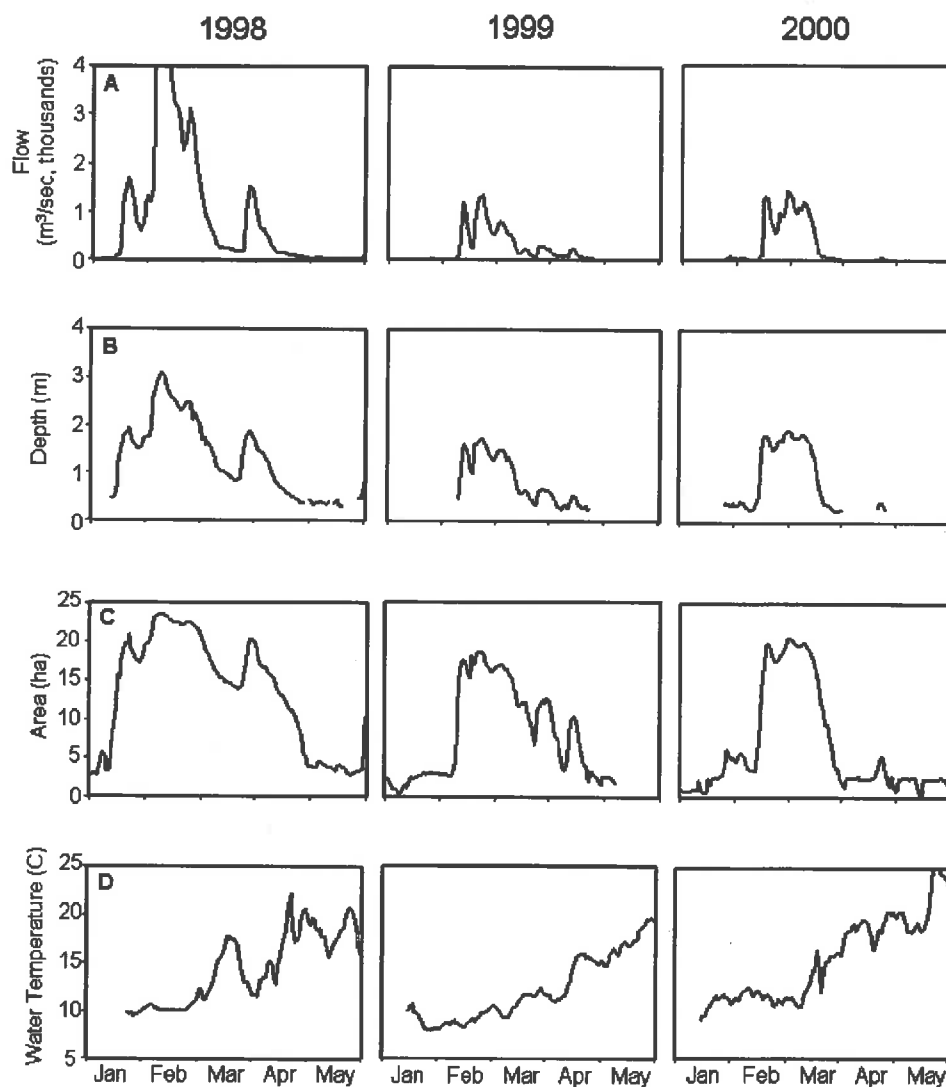


FIGURE 2.—Trends in physical variables for January–June 1998–2000: (A) mean daily flow in the Yolo Bypass; (B) simulated mean daily depth; (C) surface area; and (D) daily mean water temperature. The surface area data for 1998 and 2000 are from Sommer et al. (2004).

were first standardized for possible annual differences in abundance by conversion to *z*-scores; we then ran the randomization analysis using 1,000 iterations. We hypothesized that abundance of salmon would be equal in isolated ponds and contiguous water sources; that is, they would show no distinct “preferences.” Our reasoning was that similar abundance levels would indicate successful emigration, because most of the water drains from the floodplain. To further understand factors that could affect stranding, we also used a randomization *t*-test to compare densities of fish in two types of isolated ponds: isolated earthen ponds and concrete weir scour ponds at Fremont and Sacramento weirs (Figure 1). Sampling effort was much

greater in the isolated earthen ponds, so the randomization *t*-test was performed after randomly subsampling the earthen pond data from throughout the floodplain to provide equal sample sizes. We predicted that flood control structures would cause higher stranding than “natural” ponds. In addition, we examined trends in the catch of salmon in the screw trap data. We predicted that salmon catch would increase substantially during drainage because fish successfully emigrated the floodplain.

## Results

### Physical Habitat

The hydrographs varied substantially during the years of study (Figure 2A). In 1998 the hydrology

was wet (4.4-year recurrence flood event) and the Yolo Bypass was inundated during mid-January through mid-April and again in early June. The flow was lower in the other 2 years, when inundation occurred between mid-February and mid-March, peak flood events being at the 1.7-year recurrence interval in 1999 and at the 2.4-year recurrence interval in 2000. Surface area in the Yolo Bypass closely followed the flow peaks, the amounts of inundated area being successively smaller in each of the study years (Figure 2C). For the April 28, 1998, photographs, the total surface area of 5,050 ha was slightly lower than the model estimate of 6,700 ha. Based on the aerial photographs, we estimated that only 600 ha of the 5,050 ha comprised isolated ponds, the remainder being water that drained to the Delta. For all but peak flood events, mean water depth remained less than 1 m (Figure 2B). During peak flood events, mean depths did not exceed 2 m except in February 1998. Water temperature showed gradual increases throughout each study year (Figure 2D).

#### *Fish Habitat Use*

We captured salmon in all regions of the floodplain and on all substrate types. During 1998–2000 flood events, salmon were captured in a high percentage of samples in each region (Figure 1) of the floodplain: (1) Fremont Weir (100%,  $n = 13$  samples); (2) Cache Creek Sinks (50%,  $n = 16$  samples); (3) Yolo Bypass Wildlife Area (77%,  $n = 22$  samples); (4) Sacramento Bypass (100%,  $n = 7$  samples); (5) Putah Creek Sinks (94%,  $n = 11$  samples); and (6) Liberty Island (100%,  $n = 7$  samples). Similarly, during 1998–2000 flood events we collected salmon on a high percentage of substrate types: (1) mud (70%,  $n = 47$  samples); (2) sand (100%,  $n = 3$  samples); (3) pavement (100%,  $n = 8$  samples); (4) vegetation (97%,  $n = 32$  samples); and (5) gravel (89%,  $n = 9$  samples).

Salmon densities as estimated by purse seine sampling were not significantly different between riparian (mean abundance = 46.9/ha, SE = 10.4,  $n = 23$ ), agricultural (mean abundance = 20.9/ha, SE = 6.1,  $n = 35$ ), or natural vegetated habitat types (mean abundance = 27.5/ha, SE = 5.6,  $n = 31$ ) based on a Kruskal–Wallis test ( $H = 4.38$ ,  $df = 2$ ,  $P = 0.112$ ). There was also no statistically significant difference between the east (mean abundance = 29.5/ha, SE = 6.0,  $n = 53$ ) and west (mean abundance = 29.9/ha, SE = 6.7,  $n = 36$ ) sides of the Bypass as shown by a randomization  $t$ -test ( $P = 0.95$ ). Salmon were collected in six hauls in low-velocity habitat (mean abundance =

189/ha, SE = 24/ha), but none were collected in adjacent areas exposed to a current.

#### *Floodplain Migration Trends*

Salmon migration as indicated by trends in screw trap catch was highly variable over the course of the study, but there were prominent peaks in Chinook salmon catch coincident with floodplain drainage during late March–April (Figure 3B). Additional smaller peaks in salmon catch also paralleled flow, mostly during February and March. The life history stage of salmon during 1998 was exclusively parr through the end of March, after which the majority showed signs of smoltification.

#### *Floodplain Residence Time*

Based on recoveries of tagged fish in the screw trap, the mean residence time of CWT salmon was 33 d (range, 16–46 d;  $n = 10$ ) in 1998, 56 d (range, 4–76 d;  $n = 49$ ) in 1999, and 30 d (range, 28–37 d;  $n = 25$ ) in 2000. The size of fish was significantly larger ( $P < 0.001$ ; GLM) at the outlet of the floodplain than at the top (Figure 3C) during each of the study years.

#### *Salmon Survival and Stranding*

The numbers of CWT fish recovered for the Yolo Bypass were higher than in the Sacramento River in 1998, similar in 1999, and lower in 2000 (Table 1). Densities of wild Chinook salmon were highly variable during floodplain drainage events, with no statistically significant difference between densities in isolated earthen ponds and contiguous water sources (Table 2). However, densities of salmon were significantly higher ( $P < 0.0001$ ; randomization  $t$ -test) in concrete weir scour ponds than in isolated earthen ponds (Table 3).

### **Discussion**

Research on migratory fishes reveals that these species frequently have alternative life histories that may be influenced by habitat use at early life stages (Clark 1968; Secor 1999). Under Clark's (1968) "contingent hypothesis," migratory taxa have divergent migration pathways that could help the species deal with environmental variability and heterogeneity. This theory is consistent with our understanding of Chinook salmon, which are adapted to the extreme hydrologic variability in western North America and show a range of life histories (Healey 1991; Bottom et al. 2005). In this context, the use of multiple habitats—including natal and nonnatal streams (Bjornn 1971; Scriver

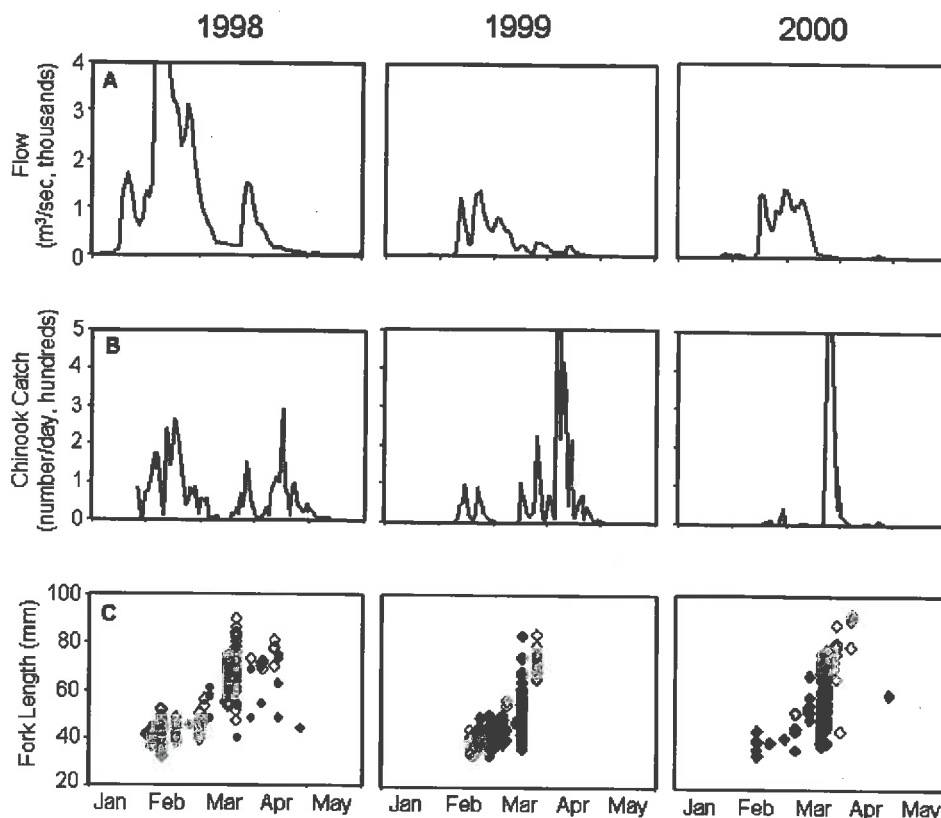


FIGURE 3.—Chinook salmon results during winter and spring 1998–2000: (A) mean daily flow; (B) salmon catch rates in screw trap sampling; and (C) salmon size for beach seine samples near the Yolo Bypass intake (solid symbols) and outlet (clear symbols).

ener et al. 1994), side channels and off-channel ponds (Swales et al. 1986; Swales and Levings 1989), low-elevation rivers (Kjelsen et al. 1982; Brown 2002), and estuaries (Healey 1991; Shreffler et al. 1992)—can be considered as part of an overall “bet-hedging” strategy that spreads risk across a variable environment. Despite the fact that seasonal floodplain represents perhaps the single most variable habitat available to salmon, our study suggests that floodplains are a viable rearing location for young fish.

TABLE 1.—Number of coded wire tags recovered in the ocean and commercial fisheries for Chinook salmon released in the Yolo Bypass and Sacramento River. The total number of tagged fish released in each location for each year is shown in parentheses. The survival ratio is calculated as the number of Yolo Bypass recoveries divided by the number of Sacramento River recoveries.

Release group	1998 (53,000)	1999 (105,000)	2000 (55,000)
Yolo Bypass	75	136	27
Sacramento River	35	138	47
Survival ratio	2.14	0.99	0.57

At the beginning of our study, our conceptual model for floodplain habitat use was that young salmon move into the floodplain during high-flow events and spread throughout the broad expanse of seasonally inundated habitat. Among the wide variety of suitable substrates and habitat types for rearing, young salmon appear to seek out low-velocity areas. Moreover, floodplain habitat apparently is not simply a migration corridor; many young salmon actively rear on the highly productive floodplain habitat for extended periods of time, resulting in high growth rates. Our findings suggest that salmon emigrate from the seasonally inundated habitat both during flood events and during drainage. Juvenile Chinook salmon do not appear to be especially prone to stranding mortality; indeed, survival may actually be enhanced by floodplain rearing in some years. Our conceptual model was supported by our results and has a variety of management implications.

Salmon were present in a broad range of habitat and substrate types and were collected in all regions and sides of the Yolo Bypass floodplain. The

TABLE 2.—Densities of Chinook salmon (number/ha  $\pm$  SE, with sample size in parentheses) collected in beach seine sampling during drainage events in 1998–2000. The sample locations are divided into isolated earthen ponds and contiguous water sources. Density differences were not statistically significant between the two pond types based on a randomization *t*-test of the pooled data for all years ( $P = 0.79$ ;  $n = 43$  for isolated ponds;  $n = 59$  for contiguous water sources).

Location type	1998	1999	2000
Isolated ponds	206 $\pm$ 112 (30)	890 $\pm$ 491 (8)	126 $\pm$ 65 (5)
Contiguous water sources	167 $\pm$ 79 (33)	310 $\pm$ 104 (13)	463 $\pm$ 123 (13)

fact that they were present on the western half of the Bypass, where flows are dominated by Knights Landing Ridge Cut and Cache and Putah creeks, suggests that salmon spread throughout the floodplain after entering the basin by way of Fremont and Sacramento weirs. A few of these fish may have originated from a modest spawning population in Putah Creek (Marchetti and Moyle 2001). The fact that salmon were present in a wide range of habitat and substrate types and in different regions of the Yolo Bypass indicates that many areas of habitat were suitable, although this does not mean that there were no habitat preferences. Like many young fishes, much of the distribution of juvenile Chinook salmon can be explained by their association with shallow depths and low velocities (Everest and Chapman 1972; Roper et al. 1994; Bradford and Higgins 2001). The physical modeling indicated that mean depths were generally 1 m or less during all but peak flood periods, so much of the thousands of hectares of inundated habitat was probably within the shallow range typically preferred by young Chinook salmon (Everest and Chapman 1972). Our limited purse seine sampling suggested that young salmon were most abundant in low-velocity areas, which is consistent with previous studies in river and stream habitat (Everest and Chapman 1972; Roper et al. 1994; Bradford and Higgins 2001). We did not directly simulate water velocity in the present study; however, the relatively shallow water depth during flood events reflects the broad area of low-velocity rearing habitat created during flood events. We expect that this increase in rearing habitat in the Yolo Bypass

provides foraging opportunities (Sommer et al. 2001b), reduced energy expenditure, and perhaps reduced probability of encounter with a predator (Ward and Stanford 1995).

Our results also suggest that fish rear in the system for extended periods rather than simply using it as a migration corridor. The mean residence time of 30–56 d for the 44-km reach between the floodplain release location and the screw trap is substantially longer than one would expect, given that (1) fingerlings are capable of migrating at rates of at least 6–24 km/d in low-elevation reaches of other large rivers (Healey 1991) and (2) one of our 1999 CWT fish was recovered just 4 days after being released, having traveled an estimated rate of 11 km/d. The fish were significantly larger at the base of the Yolo Bypass, suggesting that their period of residence in the floodplain was long enough to support substantial growth. Similarly, Sommer et al. (2001b) found that salmon showed higher growth rates in the Yolo Bypass than in the adjacent Sacramento River, primarily because of higher levels of invertebrate prey in the floodplain. A long period of rearing is also supported by the screw trap data, which showed that the densities of salmon were greatest during drainage of the floodplain. We believe that these peaks are a result of rearing salmon being forced off of the floodplain by receding flows. Temperature and salmon life history stage do not provide good alternative explanations for the emigration trends. In 1998, for example, water temperatures were relatively high by late March and salmon began smoltification shortly thereafter; yet the screw trap data indicate

TABLE 3.—Densities of Chinook salmon (number/ha  $\pm$  SE, with sample size in parentheses) collected in beach seine sampling for earthen ponds and adjacent concrete weir ponds. Density differences were statistically significant between the two pond types based on a randomization *t*-test of the pooled data for all years ( $P < 0.0001$ ;  $n = 26$  for each pond type). Note that we used a randomly sampled subset of the earthen pond data to provide equal sample sizes for the comparison.

Location type	1998	1999	2000
Earthen ponds	186 $\pm$ 67 (63)	531 $\pm$ 200 (21)	369 $\pm$ 97 (18)
Concrete weir ponds	2,717 $\pm$ 1,115 (14)	14,208 $\pm$ 3,898 (12)	4,181 $\pm$ 1,275 (3)

that emigration did not peak until the end of April, when the floodplain drained. Perhaps the emigration trends are partially confounded by seasonal variation in salmon abundance. In the absence of trap efficiency data, we cannot estimate the proportion of the population that emigrated in winter versus spring events.

Several lines of evidence suggest that the majority of fish successfully emigrated from the floodplain. One important observation was that the area of isolated ponds was small relative to the overall area of the floodplain during both peak flood and drainage periods. As an example, in 1998, the wettest year we studied, the peak area of inundation was 24,000 ha, but the total inundated area dropped to 5,000 ha by late April. Of the 5,000 ha remaining at this point, our estimates from aerial photographs showed that isolated ponds took up only 600 ha. Put another way, isolated ponds represented just 12% of the wetted area in April and only 2.5% of the peak inundated area in winter. The same trend is evident in the area simulations for 1999 and 2000, when the peak area was 20,000 ha, but dropped to about 2,000 ha within a month. These results demonstrate that the Yolo Bypass drains fairly efficiently, leaving little isolated area where stranding can occur. This finding was somewhat unexpected, because many parts of the Yolo Bypass have natural topographic features or agricultural levees that could potentially impede drainage and fish emigration. Even if the area of isolated ponds is low, stranding could still be a substantial source of mortality if densities of fish in the remaining ponds were very high. However, we found no evidence that densities of fish stranded in isolated ponds were significantly higher than those in contiguous water sources that were draining to the Delta. The key point here is that most of the water drains from the floodplain and apparently the majority of the fish are leaving with the receding floodwaters. To help illustrate this issue, if we assume that mean densities of fish observed in Table 2 were representative of the entire wetted area of floodplain in April 1998, then the total number of fish in the 600 ha of isolated ponds would have been 123,600 salmon, lower than an estimate of 835,000 fish in the 5,000 ha of contiguous water sources. This conservative estimate also does not include the large numbers of fish that emigrated from the floodplain before April.

In addition to the beach seine and surface area data, we believe that trends in screw trap data support the hypothesis that stranding is not consis-

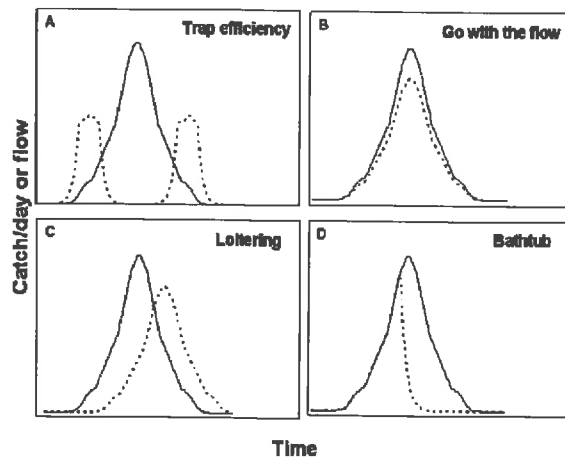


FIGURE 4.—Four conceptual models of expected screw trap catch (dotted line) relative to flow (solid line). See the Discussion for further details about each model.

tently a major problem on the floodplain. The screw trap data are somewhat ambiguous, because the large area of the floodplain makes it unreasonable to measure the efficiency of the trap. Therefore, we cannot accurately estimate the absolute number of salmon emigrating from the floodplain. However, we can at least examine the patterns of trap catch to evaluate likely mechanisms. Some of the possible patterns that we would expect to see for different factors are summarized in Figure 4. First, under the “trap efficiency” model, we would have expected dual peaks in the earliest and latest portions of flood events, when the screw trap would be sampling the highest portion of total flow (Figure 4A). If young salmon follow the “go with the flow” model, catch and flow peaks should be well-correlated (Figure 4B). Alternatively, if floodplains represent an important rearing habitat, we would expect catch trends to follow the “loitering” model, in which catch does not increase until drainage, when fish are forced from their rearing habitat by receding floodwaters (Figure 4C). Finally, if stranding were a major factor controlling catch trends, we would expect an early increase in catch as fish moved through the floodplain during inundation, but then catch should drop earlier than flow as young salmon became isolated from draining floodwaters (Figure 4D; “bathtub” model). Of these patterns, our data for the Yolo Bypass provide the strongest support for both the “go with the flow” and “loitering” models. In each year we saw obvious screw trap catch peaks associated with flow events, and additional prominent peaks associated with drainage. To summarize, apparently some of the fish move



through the floodplain in direct association with flow, whereas others remain as long as possible to rear on the floodplain. The screw trap trends show no evidence that stranding had a major influence on patterns of emigration.

Relatively low stranding rates on the Yolo Bypass floodplain are supported by observations from other seasonal floodplain habitat in the San Francisco estuary (Peter Moyle, University of California–Davis, personal communication) and other studies. Higgins and Bradford (1996) and Bradford (1997) report that juvenile salmonids are relatively mobile and that most avoid being stranded during moderate rates of stage change. Higgins and Bradford (1996) state that maximum recommended stage reduction levels for gravel bars of regulated rivers are typically 2.5–5 cm/h, much more than the 1 cm/h or less rates of change in mean water depth we observed during drainage in the present study. In his review of the ecology of fishes in floodplain rivers, Welcomme (1979) noted that the majority of fish emigrate from floodplain habitat during drainage.

Even if stranding is not a major source of mortality, this does not necessarily mean that floodplains are not sinks for salmon production. Of the possible sources of mortality, birds and piscivorous fishes may have benefited from stranded salmon (Brown 2002). As noted by Sommer et al. (2001a), major avian predation is unlikely because densities of wading birds are low relative to the thousands of hectares of rearing habitat available during flood events. We did not measure densities of fish predators, but believe that the creation of large areas of rearing habitat should create more refuges for young fish and decrease the probability of encounter with a predator.

Ultimately, it is survival data that allow us to differentiate source from sink habitat. The size and complexity of the San Francisco estuary made it very difficult to directly measure survival rates with statistical rigor (Newman and Rice 2002); however, our CWT release studies at least provide an indication of whether survival rates in the Yolo Bypass were substantially different from those in the Sacramento River, the adjacent migration corridor. The limited results suggest that fry–adult survival rates were at least comparable in the Yolo Bypass and the Sacramento River. Moreover, the 1998 results suggest that in some years, survival may actually be substantially higher for salmon that migrate through the floodplain. Although none of these CWT releases were replicated, the fact that Sommer et al. (2001b) reported similar results

for fry-to-smolt survival for the same releases in 1998 and 1999 increases our confidence that the survival data are not spurious.

Our data indicate that floodplains are a viable rearing habitat for juvenile Chinook salmon. Hence, the most important management implication of our study is that seasonal habitat should be considered as part of restoration plans for this species. Despite frequent concerns that off-channel habitat could increase stranding mortality (Brown 2002; Bruce Oppenheim, NOAA Fisheries, personal communication), our results for a hydrologically variable seasonal floodplain suggest that one should be able to design restoration projects that do not create a population sink because of excessive mortality. This is not to say, however, that stranding mortality is never an issue on floodplain habitat. For example, in the Yolo Bypass we saw significantly higher stranding rates in the concrete weir scour ponds of Fremont and Sacramento weirs than in earthen ponds. This finding suggests that artificial water control structures can create unusual hydraulics that promote stranding. However, the total area of these concrete weir ponds was only 3 ha, much smaller than our estimate of 600 ha for total isolated pond area for April 1998 and insignificant compared with the peak inundated area of 24,000 ha area. Fixing the poor hydraulics at these water-control structures may, nonetheless, be an attractive option, particularly if the cost of the solution is relatively low or if it helps to address other fisheries issues such as adult fish passage. In the Yolo Bypass, the concrete weirs not only create stranding problems for juveniles but also frequently block upstream passage of adult salmon, sturgeon, and steelhead trout (Sommer et al. 2001a), thus creating an incentive to resolve both issues simultaneously.

Finally, we wish to acknowledge that even natural floodplain or well-designed restored floodplain habitat could at least occasionally be a population sink because of stranding or predation losses. Our study was conducted over 3 years for a single, large floodplain; we cannot rule out the possibility that floodplains may not have net benefits in other years or locations. As an example, fish densities in the Yolo Bypass were relatively low compared with those reported in some other studies (Levy and Northcote 1982; Swales et al. 1986; Swales and Levings 1989); perhaps young salmon behavior could be different at higher densities. However, the potential for such losses can still be consistent with effective management of salmon populations. Diverse life history strategies

provide bet-hedging for salmon populations in the highly variable environment of coastal tributaries (Secor 1999; Bottom et al. 2005). We therefore expect that young salmon will not thrive in all habitats in every year. In the case of highly variable seasonal environments such as floodplains, stranding losses might cause excessive mortality in some years, but the risks may be offset by increased rearing habitat and food resources in other years (Sommer et al. 2001b; Brown 2002).

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# Floodplain rearing of juvenile chinook salmon: evidence of enhanced growth and survival

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**Abstract:** In this study, we provide evidence that the Yolo Bypass, the primary floodplain of the lower Sacramento River (California, U.S.A.), provides better rearing and migration habitat for juvenile chinook salmon (*Oncorhynchus tshawytscha*) than adjacent river channels. During 1998 and 1999, salmon increased in size substantially faster in the seasonally inundated agricultural floodplain than in the river, suggesting better growth rates. Similarly, coded-wire-tagged juveniles released in the floodplain were significantly larger at recapture and had higher apparent growth rates than those concurrently released in the river. Improved growth rates in the floodplain were in part a result of significantly higher prey consumption, reflecting greater availability of drift invertebrates. Bioenergetic modeling suggested that feeding success was greater in the floodplain than in the river, despite increased metabolic costs of rearing in the significantly warmer floodplain. Survival indices for coded-wire-tagged groups were somewhat higher for those released in the floodplain than for those released in the river, but the differences were not statistically significant. Growth, survival, feeding success, and prey availability were higher in 1998 than in 1999, a year in which flow was more moderate, indicating that hydrology affects the quality of floodplain rearing habitat. These findings support the predictions of the flood pulse concept and provide new insight into the importance of the floodplain for salmon.

**Résumé :** Notre étude démontre que le canal de dérivation Yolo, la principale plaine d'inondation de la région aval de la rivière Sacramento (Californie, É.-U.), offre de meilleurs habitats pour l'alevinage et la migration des jeunes Saumons Quinnet (*Oncorhynchus tshawytscha*) que les bras adjacents de la rivière. En 1998 et 1999, la taille des saumons a augmenté plus rapidement dans la plaine d'inondation agricole, sujette aux débordements saisonniers de crue, que dans la rivière, ce qui laisse croire à de meilleurs taux de croissance. De plus, des jeunes saumons marqués à l'aide de fils de métal codés et relâchés dans la plaine d'inondation étaient plus gros au moment de leur recapture et avaient des taux de croissance apparente plus élevés que des poissons relâchés dans la rivière en même temps. L'amélioration des taux de croissance dans la plaine de débordement résultait en partie d'une consommation significativement plus importante de proies, le reflet d'une plus grande disponibilité des invertébrés de la dérive. Un modèle bioénergétique laisse croire que le succès de l'alimentation a été meilleur dans la plaine d'inondation que dans la rivière, en dépit du coût métabolique d'alevinage significativement plus grand dans les eaux plus chaudes de la plaine d'inondation. Les indices de survie des poissons marqués et relâchés dans la plaine d'inondation étaient quelque peu plus élevés que ceux des poissons de la rivière, mais les différences n'étaient pas statistiquement significatives. La croissance, la survie, le succès de l'alimentation et la disponibilité des proies étaient tous supérieurs en 1998 par comparaison avec 1999, une année à débit plus modéré, ce qui indique que l'hydrologie affecte la qualité des habitats d'alevinage dans la plaine d'inondation. Nos résultats appuient les prédictions du concept de pulsion de crue (flood pulse concept) et mettent en lumière l'importance de la plaine d'inondation pour le saumon.

[Traduit par la Rédaction]

## Introduction

Although the trophic structure of large rivers is frequently dominated by upstream processes (Vannote et al. 1980), there is increasing recognition that floodplains plays a major role in the productivity and diversity of riverine communities (Bayley 1995). Based largely on observations from relatively undisturbed river–floodplain systems, Junk et al. (1989) pro-

posed the flood pulse concept, which predicts that annual inundation is the principal force determining productivity and biotic interactions in river–floodplain systems. Floodplains can provide higher biotic diversity (Junk et al. 1989) and increased production of fish (Bayley 1991; Halyk and Balon 1983) and invertebrates (Gladden and Smock 1990). Potential mechanisms for floodplain effects include increased habitat diversity and area (Junk et al. 1989), large inputs of

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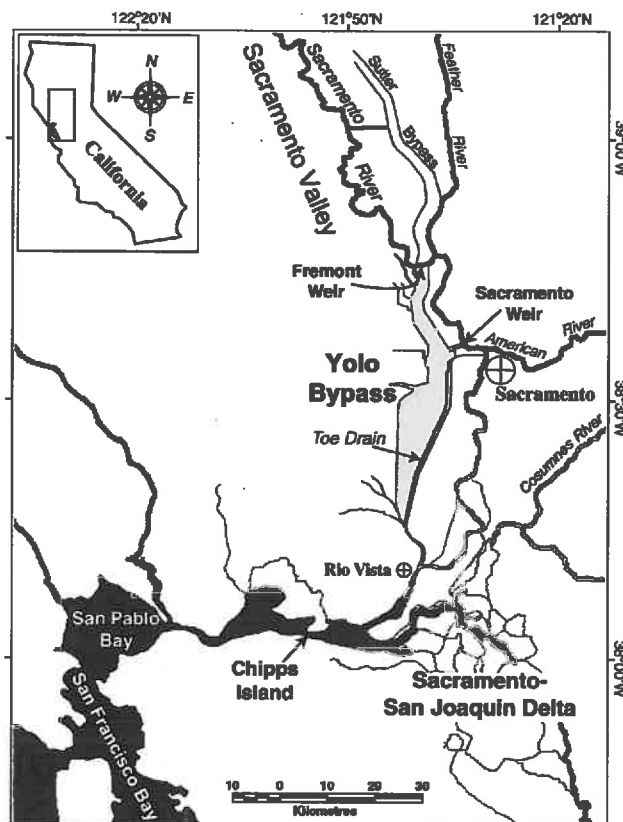
terrestrial material into the aquatic food web (Winemiller and Jepsen 1998), and decreased predation or competition due to intermediate levels of disturbance (Corti et al. 1997). Nonetheless, the degree to which floodplains support riverine ecosystems remains poorly understood, particularly in regulated and temperate rivers. Uncertainties about river-floodplain relationships are due, in large part, to the difficulty in separating the relative contribution of floodplain versus channel processes and sampling problems in seasonal habitats, which are frequently subject to extreme environmental variation.

In this study, we examined the relative importance of floodplain and riverine habitat to juvenile chinook salmon (*Oncorhynchus tshawytscha*) in the Sacramento River (California, U.S.A.), a large regulated river (Fig. 1). The system is particularly well suited to a comparative study, because young salmon migrating down the lower Sacramento River to the San Francisco Estuary in wet years have two alternative paths: they may continue down the heavily channelized main river or they may pass through the Yolo Bypass, an agricultural floodplain bordered by levees. We had two reasons to believe that the floodplain might be important habitat for young salmon. First, years of high flow are known to enhance populations of a variety of species in the San Francisco Estuary (Jassby et al. 1995) and the survival of chinook salmon (Kjelson et al. 1982). However, the specific mechanisms for these benefits have not been established. Possible reasons for the positive effects of flow on fish include increased habitat availability, migration cues, food supply, larval transport, and reduced predation rates (Bennett and Moyle 1996). Floodplain inundation is one of the unique characteristics of wet years, during which the Yolo Bypass is likely to be a significant migration corridor for young chinook salmon in the Sacramento Valley. During high-flow events, the Yolo Bypass can convey >75% of the total flow from the Sacramento River basin, the major producer of salmon among tributaries of the San Francisco Estuary. Second, floodplains are known to be among the most important fish-rearing areas in a variety of river systems, yet in developed regions, the availability of this habitat has been greatly reduced by channelization and levee and dam construction (Rasmussen 1996). A high degree of habitat loss may greatly enhance the biological significance of remnant floodplains in heavily modified systems, such as the San Francisco Estuary and its tributaries.

This study tests the hypothesis that the agricultural floodplain provides better habitat quality than the adjacent river channel. For the purpose of this analysis, we focus on salmon growth, feeding success, and survival as indicators of habitat quality. Obviously, there are many other possible measures of habitat quality, such as reproductive output of adults or physiological indicators. However, we believe that the chosen suite of parameters is reasonably representative of habitat quality. For example, Gutreuter et al. (2000) successfully used growth as a factor to test the hypothesis that floodplain inundation had a major effect on fish production.

The San Francisco Estuary is one of the largest estuaries on the Pacific Coast (Fig. 1). The system includes downstream bays (San Pablo and San Francisco) and a delta, a broad network of tidally influenced channels that receive inflow from the Sacramento and San Joaquin rivers. The estu-

Fig. 1. The location of Yolo Bypass in relation to the San Francisco Estuary and its tributaries. The San Francisco Estuary encompasses the region from San Francisco Bay upstream to Sacramento. Feather River Fish Hatchery is located on the Feather River approximately 112 km upstream of Yolo Bypass.



ary and its tributaries have been heavily altered by levees, dams, land reclamation activities, and water diversions. The primary floodplain of the Sacramento River portion of the delta is the Yolo Bypass, a 24 000-ha leveed basin that conveys excess flow from the Sacramento Valley, including the Sacramento River, Feather River, American River, Sutter Bypass, and westside streams. The 61 km long floodplain floods seasonally in winter and spring in about 60% of years, and is designed to convey up to  $14\,000\text{ m}^3\cdot\text{s}^{-1}$ . During a typical flooding event, water spills into the Yolo Bypass via the Fremont Weir when Sacramento Basin flows surpass approximately  $2000\text{ m}^3\cdot\text{s}^{-1}$ . Except during extremely high flow events, the mean depth of the floodplain is generally less than 2 m, creating broad shoal areas. During dry seasons, the Toe Drain channel, a permanent riparian corridor, remains inundated as a result of tidal action. At higher levels of Sacramento Basin flow (e.g.,  $>5000\text{ m}^3\cdot\text{s}^{-1}$ ), the Sacramento Weir is also frequently operated. Agricultural fields are the dominant habitat type in Yolo Bypass, but approximately one-third of the floodplain area is natural vegetation, including riparian habitat, upland habitat, emergent marsh, and permanent ponds.

There are four races of chinook salmon in the Sacramento Valley: winter, spring, late fall, and fall run (Yoshiyama et al. 2000). Historical data indicate that all races have de-

creased in abundance since the 1950s, but the spring, winter, and late-fall runs have shown the most pronounced declines. There are multiple causes for these long-term reductions, including habitat loss, habitat degradation, water diversions, and oceanic conditions. In the present study, we focused on the fall run, the numerically dominant race in the Sacramento Valley. The typical life-history pattern for these salmon is for young to migrate from the tributaries to the bay-delta area at the "fry" stage (Brandes and McLain 2001), when most individuals are approximately 35- to 70-mm fork length (FL). In low flow years, there may be substantial upstream rearing in the Sacramento River. Peak juvenile emigration from the tributaries occurs during winter and spring (Kjelson et al. 1982).

## Materials and methods

### Physical conditions

During 1998–1999, flow measurements in Yolo Bypass and the adjacent stretch of the Sacramento River were obtained from gauges operated by the U.S. Geological Survey (USGS). Daily water temperatures for each site were calculated as the mean of maximum and minimum daily measurements for single stations in the Sacramento River (USGS) and a temperature recorder (Onset Corp.) installed in the Yolo Bypass Toe Drain channel (Fig. 1). However, from 1 February to 26 March 1998, these data were not available for Yolo Bypass. During this period, before the recorder was installed, discrete measurements were taken at the same location, typically during mid or late morning.

### Fish sampling

Salmon FL (mm) was measured during January–April in 1998 and 1999 on samples collected with 15-m beach seines (4.75-mm mesh). Samples were collected weekly at five core locations located around the perimeter of the Yolo Bypass, during periods when the basin was flooded. After the bypass drained, additional samples were collected at random locations around the perimeter of ponds near the core locations. Comparative data on salmon size in the adjacent reach of the Sacramento River were collected by the U.S. Fish and Wildlife Service (USFWS) at five beach-seine sites, using techniques similar to those used when the the bypass was flooded.

FLs of salmon obtained from beach-seine sampling were compared to determine whether there was evidence of major differences in salmon size between the Yolo Bypass and the Sacramento River. However, these data were not considered unambiguous evidence of growth differences, because the two systems were open to immigration and emigration during much of the study, and migrating salmon include multiple races of salmon that cannot be readily separated. We addressed this issue by using paired releases of coded-wire-tagged (CWT) juvenile salmon in Yolo Bypass and the Sacramento River. This approach allowed comparisons of growth among fish of similar origin and provided a relative estimate of migration time and survival. The salmon were produced and tagged at the Feather River Fish Hatchery and released on 2 March 1998 and 11 February 1999. The release sites were in Yolo Bypass below Fremont Weir (52 000 in 1998; 105 000 in 1999) and in the adjacent reach of the Sacramento River (53 000 in 1998; 105 000 in 1999). The fish had a mean FL of  $57.5 \pm 0.5$  mm (SE) in 1998 and of  $56.8 \pm 0.4$  mm (SE) in 1999. A small portion of each group was subsequently collected by trawling at the seaward margin of the delta at Chipps Island, which is located downstream of the confluence of the Yolo Bypass and the Sacramento River (Fig. 1). The USFWS Chipps Island survey samples a single channel location with a midwater trawl towed at the surface (Baker et al. 1995;

Brandes and McLain 2001). Ten 20-min tows were made each day, except during March in 1998 and 1999, when sampling was conducted every other day. Data on migration time (days) and FL (mm) were recorded for fish recaptured from each release group. Apparent growth rate was also calculated for each fish, as:  $(FL \text{ of individual at Chipps Island} - \text{mean FL of CWT release group}) \times (\text{migration time})^{-1}$ . Survival indices of the paired CWT releases were calculated by USFWS by dividing the number of fish recovered for each release group at Chipps Island by the number released, corrected for the fraction of time and channel width sampled (Brandes and McLain 2001).

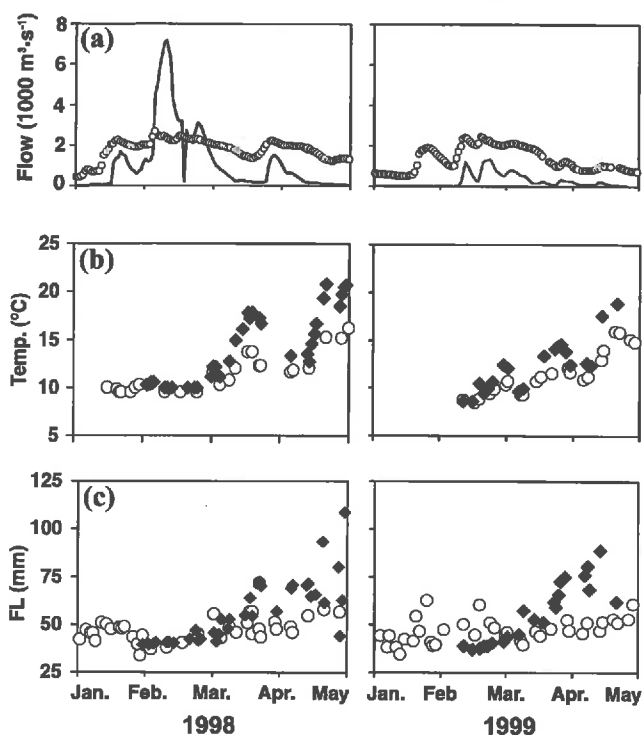
### Diet

We performed diet comparisons on fall-run juvenile salmon (33–81 mm) collected in beach-seine samples during February–March of 1998 and 1999 from the Yolo Bypass (103 individuals) and the Sacramento River (109 individuals). Fish samples were tagged and stored individually in a deep freeze. After thawing, stomachs were removed from the fish and the contents were identified (using a dissecting microscope) to order (insects and arachnids), genus (crustaceans), or phylum (rarely eaten taxa such as oligochaetes). To develop average invertebrate length estimates, up to 10 individuals of each prey type encountered were measured. Prey dry weight estimates were calculated from average lengths, using regression equations for delta crustaceans obtained from J. Orsi (California Department of Fish and Game, Stockton, CA 95205, unpublished data) and from literature sources. Diet results were compared as an index of relative importance (IRI) (Shreffler et al. 1992) for each month. The index was calculated as:  $\text{IRI} = (\% \text{ numeric composition} + \% \text{ weight composition}) \times \% \text{ frequency of occurrence}$ .

### Prey availability

Invertebrates were sampled in February–March of 1998 and 1999, to examine prey availability in the Yolo Bypass and the Sacramento River. Sampling was not designed as a comprehensive evaluation of spatial and temporal variation of prey. Rather, it was intended to provide information on whether variation in salmon diets between the two locations was consistent with gross differences in prey type or relative abundance. We focused on Diptera (adults, pupae, and larvae) and crustacean zooplankton, which comprised over 90% of the diets of Yolo Bypass and Sacramento River juvenile salmon. Weekly drift samples were collected at fixed stations on the Yolo Bypass and the Sacramento River during periods when the floodplain was inundated. The sampling points were located away from overhanging vegetation and bank eddies, in water velocities of approximately  $15\text{--}60 \text{ cm}\cdot\text{s}^{-1}$ , depending on flow. Net (500- $\mu\text{m}$  mesh) dimensions were  $0.46 \times 0.3$  m mouth and 0.91 m length. The nets were fished for approximately 30 min during mid-morning, to coincide with the time period when most fish-stomach samples were taken. Sample volume was calculated using a flowmeter (General Oceanics Model 2030R) and net dimensions. Drift samples were stored in ethanol or formaldehyde, then identified to family or order using a dissecting microscope. In 1998, zooplankton were collected in the Yolo Bypass at two fixed stations with battery-operated rotary-vane pumps with a mean flow rate of  $17 \text{ L}\cdot\text{min}^{-1}$ . Samples were taken via pipes with outlets at multiple locations beneath the water surface. Discharge was directed into a 150  $\mu\text{m}$  mesh net held in a basin on the bank. Flow rate was recorded at the beginning and end of the sample period, which varied from 1 to 6 h. No samples were taken in the Sacramento River during a comparable period in 1998. In 1999, zooplankton samples were taken with a Clarke-Bumpus net (160- $\mu\text{m}$  mesh, diameter 0.13 m, length 0.76 m) placed in surface flow in the Yolo Bypass and Sacramento River. Sample volume was recorded as for the drift net. Zooplankton samples were concentrated and stored in 5%

**Fig. 2.** Chinook salmon size versus physical conditions in Yolo Bypass and the Sacramento River during winter and spring in 1998 and 1999. (a) Mean daily flow ( $\text{m}^3\cdot\text{s}^{-1}$ ) in Yolo Bypass (solid line) and the Sacramento River (circles). (b) Mean water temperature ( $^{\circ}\text{C}$ ) in Yolo Bypass (solid symbols) and the Sacramento River (open symbols). (c) Mean daily chinook salmon FL for Yolo Bypass (solid symbols) and Sacramento River (open symbols) beach-seine stations. For presentation purposes, only the daily mean FLs are shown; however, individual observations for February–March were used for statistical analyses.



formaldehyde, for later identification to genus using a dissecting microscope.

### Bioenergetics

Feeding success was examined in two ways: (1) prey biomass estimated from stomach contents and (2) prey biomass estimated as a function of maximum theoretical consumption. For the first measure, we used the previously described stomach-content data to calculate total-prey biomass for individual fish.

A limitation of using prey biomass as a measure of feeding success between locations is that thermal history affects how consumption alters growth rate (Hewett and Kraft 1993). As will be discussed in further detail, water temperatures were significantly higher in the Yolo Bypass floodplain than in the Sacramento River. To correct for this problem, our second approach used bioenergetic modeling to incorporate the metabolic effects of water temperature. We used methods similar to those of Rand and Stewart (1998) to calculate a wet weight ration index, which uses prey biomass for each sampled individual as a proportion of the theoretical maximum daily consumption. The stomach-content data were used as our estimate of prey biomass for individual fish. The theoretical maximum daily consumption rate ( $C_{\text{max}}$ ) was modeled using Fish Bioenergetics 3.0 (Hanson et al. 1997), using observed body size and water temperature at the time each beach-seine sample was collected. The model input also required fish mass, which we estimated from FL data, using length–weight relationships from Sacra-

**Table 1.** Robust regression statistics for Yolo Bypass and Sacramento River salmon FLs for 1998 and 1999.

	1998		1999	
	Parameter $\pm$ SEM	<i>t</i>	Parameter $\pm$ SEM	<i>t</i>
Intercept	29.4 $\pm$ 0.6	46.8	23.5 $\pm$ 0.5	43.7
Location	6.4 $\pm$ 0.6	10.2	11.1 $\pm$ 0.5	20.6
Day	0.3 $\pm$ 0.01	34.5	0.3 $\pm$ 0.01	48.5
Location:day	-0.14 $\pm$ 0.01	-18.4	-0.21 $\pm$ 0.01	-33.6

Note: The *t* values are all highly significant ( $p < 0.0001$ ).

mento River juvenile salmon (Petrucco 1998). The caloric value of the prey was taken from weight conversion factors provided by Hanson et al. (1997). Model parameters were derived from those of Stewart and Ibarra (1991) for chinook salmon. The model was run for individual fish collected at each sampling location in 1998 and 1999.

We emphasize that the second approach provides an *index*, rather than an *absolute* measure of feeding success. The wet weight ration index is conceptually analogous to “*P*” in Hanson et al. (1997), a model parameter that indicates what fraction of  $C_{\text{max}}$  is obtained over the course of the day. The major difference is that *P* is based on prey consumption over a 24-hour period, whereas our wet weight ration index is based on instantaneous measurements of stomach contents, which may not represent mean trends over the entire day. An additional limitation is that the Stewart and Ibarra (1991) model parameters were developed for adult salmon and we applied the model to juveniles. We did not have sufficient field or laboratory data to develop bioenergetic-model parameters specific to the earliest life stages. Nonetheless, other studies (Rand and Stewart 1998) have demonstrated that similar wet weight ration indices can provide an effective technique for comparing relative salmonid feeding success between seasons and years.

### Statistical analysis

Overlapping temperature measurements from continuous recorders and the discrete measurements during 26 March – May 1998 were analyzed with Wilcoxon’s matched-pairs test, to determine whether the two methods yielded different results. Mean water temperature for Yolo Bypass and the Sacramento River during the primary period of floodplain inundation (February–March) was analyzed with a generalized linear model with a variance function that increased with the mean squared, since variances were not homogeneous (Venables and Ripley 1997). Salmon FL measurements for Yolo Bypass and the Sacramento River during February–March of 1998 and 1999 were compared with a robust iteratively reweighted least squares regression procedure (“rlm”; Venables and Ripley 1997), because we detected substantial numbers of outliers in preliminary graphical evaluations of the data. Initial analyses revealed a substantial difference in the effects of location between years, so years were analyzed separately. Results from the CWT and bioenergetic studies were analyzed using a factorial-design analysis of variance, to evaluate the effects of location (Yolo Bypass, Sacramento River) and year (1998, 1999). Residuals from each model were examined graphically, to confirm that they met the assumption of normality and homogeneity of variance. Cochran and Levene’s tests were also used, to test the assumption of homogeneity of variance. Logarithmic transformation was performed where necessary.

## Results

### Physical conditions

Yolo Bypass was inundated in 1998 and 1999 but the hydrology was substantially different in the two years (Fig. 2).

**Table 2.** Results of salmon collections at Chipps Island for 1998 and 1999 coded-wire-tagged groups released concurrently in Yolo Bypass and the Sacramento River.

	1998		1999	
	Yolo Bypass	Sacramento River	Yolo Bypass	Sacramento River
Fork length (mm)	93.7±2.0	85.7±1.4	89.0±2.6	82.1±1.7
Migration time (days)	46.2±2.3	55.4±3.5	58.2±2.8	58.6±4.1
Apparent growth rate (mm·day <sup>-1</sup> )	0.80±0.06	0.52±0.02	0.55±0.06	0.43±0.03
Survival index	0.16	0.09	0.09	0.07
Sample size	9	10	9	8

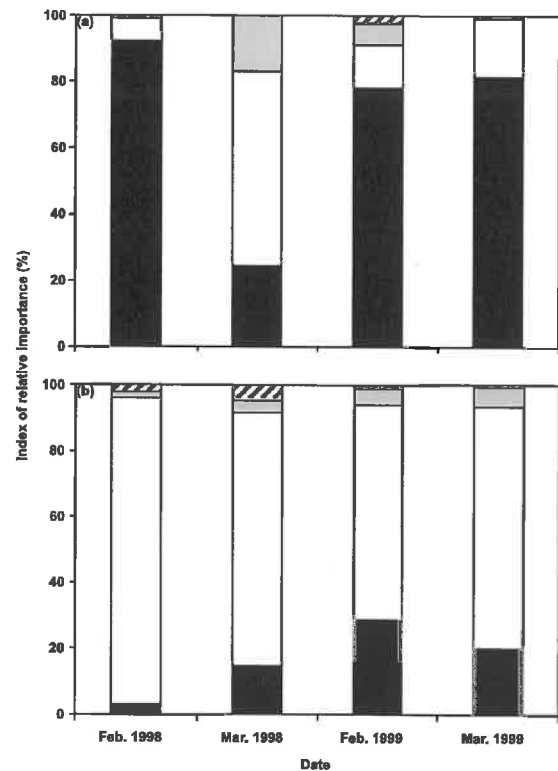
Note: Values for FL, migration time, and apparent growth rate are mean ± standard error (SEM).

The first year was extremely wet, with multiple flow pulses and a peak flow of 7200 m<sup>3</sup>·s<sup>-1</sup>. In 1999, floodplain hydrology was more moderate, with a peak of 1300 m<sup>3</sup>·s<sup>-1</sup>. Flows in the Sacramento River were much less variable than in the floodplain and generally remained at or below 2000 m<sup>3</sup>·s<sup>-1</sup>, a level within the design capacity (3100 m<sup>3</sup>·s<sup>-1</sup>) of the channel. Overlapping sampling between the continuous-temperature recorders and the discrete measurements during March–May 1998 showed a mean difference of 0.9°C between the two approaches, but this disparity was not statistically significant (Wilcoxon's matched-pairs test,  $p > 0.25$ ). In 1998 and 1999, temperatures increased fairly steadily throughout the study period; however, in both years, temperature levels in Yolo Bypass were up to 5°C higher than those in the adjacent Sacramento River during the primary period of inundation, February–March. Temperature in the Yolo Bypass was described in 1998 by  $T_y = -7.7 \pm 2.1 + (1.9 \pm 0.2)T_s$  and in 1999 by  $T_y = -3.5 \pm 1.2 + (1.5 \pm 0.1)T_s$ , where  $T_y$  is the temperature of the Yolo Bypass,  $T_s$  is the temperature of the Sacramento River, and the range for each value is the 95% confidence limit.

#### Fish growth, migration time, apparent growth rate, and survival

Salmon increased in size substantially faster in the Yolo Bypass than in the Sacramento River during each of the study years (Fig. 2). Robust regression results showed that the effect of location was highly significant ( $p < 0.00001$ ) in each year (Table 1). This result is consistent with the CWT data (Table 2), which showed that the 1998 and 1999 Yolo Bypass CWT release groups had significantly larger mean length ( $F = 14.34$ ,  $p = 0.0006$ ) and higher apparent growth rates ( $F = 20.67$ ,  $p = 0.0007$ ) than the Sacramento River release groups. There was also a statistically significant effect of year: both release groups had larger mean sizes ( $F = 4.42$ ,  $p = 0.04$ ) and higher apparent growth rates ( $F = 16.47$ ,  $p = 0.0002$ ) in 1998 than in 1999. The 1998 Yolo Bypass CWT group showed the fastest migration time, arriving an average of at least 9 days ahead of any other release group. However, there was no statistically significant ( $F = 2.22$ ,  $p = 0.15$ ) effect of release location on migration time in the analysis of variance (ANOVA). As for fish size and apparent growth rate, mean migration time was slower in 1999 than in 1998 ( $F = 5.60$ ,  $p = 0.02$ ). There was no statistically significant interaction between location and year for salmon size ( $F = 0.07$ ,  $p = 0.78$ ), apparent growth rate ( $F = 1.62$ ,  $p = 0.21$ ), or migration time ( $F = 1.8$ ,  $p = 0.18$ ). The survival indices were somewhat higher for CWT groups released in the Yolo By-

**Fig. 3.** Chinook salmon diet during February and March of 1998 and 1999 in Yolo Bypass (a) and the Sacramento River (b). The index of relative importance (y-axis) is defined in the text. Diptera (solid bars), zooplankton (open bars), other aquatic prey (shaded bars), and other terrestrial prey (striped bars) are shown for each month.



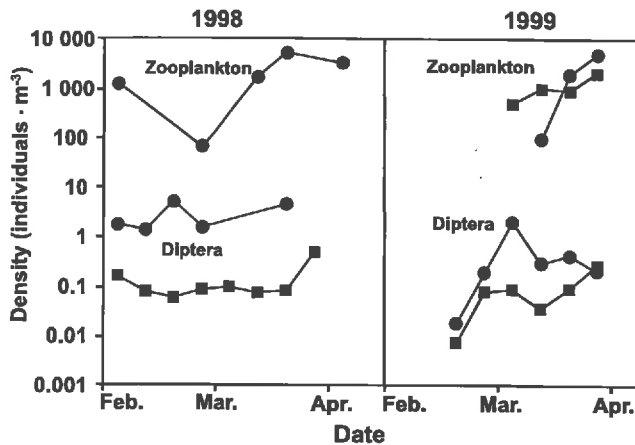
pass than for those released in the Sacramento River for both 1998 and 1999. However, the lowest coefficient of variation based on a Poisson distribution of the CWT recaptures is 32%, and the actual (unknown) distribution of counts is likely to have higher variance than a Poisson distribution. Clearly the confidence limits of the paired survival indices would overlap, so the differences are not statistically significant.

#### Diet

The diet of young salmon in the Yolo Bypass was dominated by dipterans, principally chironomid pupae and adults (Fig. 3). The second most common prey item was zooplank-



Fig. 4. Log<sub>10</sub>-scaled weekly abundance (individuals·m<sup>-3</sup>) of zooplankton and Diptera in Yolo Bypass (circles) and the Sacramento River (squares) during 1998 and 1999. Note that 1998 zooplankton data were not available for the Sacramento River.



ton, mostly cladocerans and copepods. Except for March 1998, zooplankton comprised less than 15% of the Yolo Bypass diets. Other aquatic (mainly amphipods and collembola) and terrestrial (mainly ants and arachnids) prey were relatively minor diet items. As for the floodplain samples, dipterans and zooplankton comprised over 90% of the diets of Sacramento River salmon; however, zooplankton were the dominant prey item in all months. Other aquatic (mostly amphipods, oligochaetes, and collembola) and terrestrial (mostly ants and other terrestrial insects) prey were consumed infrequently.

#### Prey availability

The drift samples contained many of the same taxa observed in the salmon diets, with Diptera (principally chironomids) as the major type at both sampling locations. However, the density of Diptera was much higher in the Yolo Bypass than in the Sacramento River (Fig. 4), particularly in 1998, when densities were consistently an order of magnitude higher. In general, dipteran drift densities were higher at each location in 1998 than in 1999. There was little difference in zooplankton density in the Yolo Bypass between 1998 and 1999 or between Yolo Bypass and the Sacramento River in 1999.

#### Bioenergetics

Young salmon from the Yolo Bypass had higher total-prey weights ( $F = 39.2$ ,  $df = 1$ ,  $p < 0.0001$ ) than those from the Sacramento River (Fig. 5). The bioenergetic-modeling results showed that Yolo Bypass salmon also had higher wet weight ration indices than those from the Sacramento River ( $F = 19.3$ ,  $df = 1$ ,  $p < 0.0001$ ). The interaction between location and year was significant for both the wet weight ration indices ( $F = 10.0$ ,  $df = 1$ ,  $p = 0.02$ ) and the prey weights ( $F = 4.7$ ,  $df = 1$ ,  $p = 0.03$ ).

#### Discussion

Chinook salmon that rear in the Yolo Bypass floodplain have higher apparent growth rates than those that remain in

the adjacent Sacramento River channels. Mean length increased faster in the Yolo Bypass during each study year, and CWT fish released in the Yolo Bypass were larger and had higher apparent growth rates than those released in the Sacramento River. It is possible that these observations are due to higher mortality rates of smaller individuals in the Yolo Bypass or of larger individuals in the Sacramento River; however we have no data or reasonable mechanism to support this argument.

Apparent growth differences between the two areas are consistent with water temperature and stomach-content results. We found that the Yolo Bypass floodplain had significantly higher water temperatures and that young salmon from the floodplain ate significantly more prey than those from the Sacramento River. The wet weight ration indices calculated from bioenergetic modeling suggest that the increased prey availability in Yolo Bypass was sufficient to offset increased metabolic requirements from higher water temperatures. Higher water temperatures in the Yolo Bypass are expected as a result of the shallow depths on the broad floodplain. Increased feeding success in the Yolo Bypass is consistent with trends in prey availability. While Yolo Bypass and the Sacramento River had similar levels of zooplankton, Yolo Bypass had more dipteran prey in the drift, particularly in 1998. Studies of juvenile chinook salmon diets by Rondorf et al. (1990) showed that zooplankton were the least-favored prey items. Therefore, the dominance of zooplankton in the diets of Sacramento River salmon probably reflects a relatively low availability of other more energetically valuable prey items.

Recoveries of paired releases were too few to determine whether the higher survival indices for the Yolo Bypass release groups represent actual survival differences or random variation. Additional validation is needed from new release studies and from CWT recoveries in the adult ocean fishery and escapement. Nonetheless, the hypothesis that floodplain rearing could improve survival is substantiated by the growth data and bioenergetic modeling. Faster growth rates reflect improved habitat conditions, which would be expected to lead to improved survival, both during migration and later in the ocean. Elevated Yolo Bypass survival rates are also consistent with significantly faster migration rates in 1998, the likely result of which would be reduced exposure time to mortality risks in the delta, including predation and water diversions.

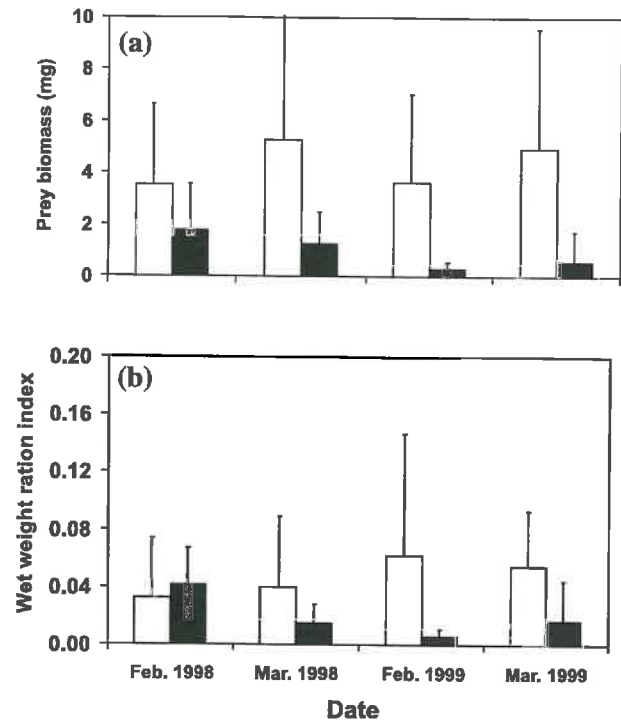
Improved survival is consistent with other habitat differences between the Yolo Bypass floodplain and the Sacramento River channel. We estimate that complete inundation of the Yolo Bypass creates a wetted area approximately 10 times larger than the reach of the Sacramento River we studied. This level of inundation is equivalent to a doubling of the wetted area of the entire delta portion of the San Francisco Estuary. Much of the floodplain habitat consists of broad shoals composed of soil and vegetation that are typical of the low-velocity conditions selected by young salmon (Everest and Chapman 1972). An increase in rearing area should reduce competition for food and space and perhaps reduce the probability of encountering a predator. In contrast, the Sacramento River channel is relatively narrow, with steep rock-reinforced banks and little shallow habitat. Migration through the Yolo Bypass corridor would also prevent

fish from entering the channels of the central delta, in which there are various risks, including major water diversions (Brandes and McLain 2001). However, the Yolo Bypass is a less-stable environment, with stranding risks when flood waters recede. The relatively well-drained topography of the Yolo Bypass floodplain may help to reduce the magnitude of this problem. This is not to say, however, that access to floodplain rearing habitat represents the only mechanism to account for possible improvements in juvenile salmon survival in wetter years. Other covariates, such as reduced water temperature (Baker et al. 1995), reduced predation losses from higher turbidity (Gregory and Levings 1998), and reduced water diversion effects (Kjelson et al. 1982), also contribute to improved wet-year survival of salmon that migrate through the San Francisco Estuary.

The results from this study suggest that hydrology may affect salmon feeding success, migration, and survival in both floodplain and river habitat. The CWT results indicate that salmon grew faster, migrated faster, and may have had better survival rates in 1998 than in 1999. One clear difference between the years is that the flow pulses were higher and of longer duration in 1998 than in 1999. Higher flow could directly increase migration rates through higher water velocities and have multiple indirect effects on growth through factors such as food supply or water temperature. The abundance of Diptera in drift samples was substantially higher in 1998 than in 1999 in both locations. The significant interaction between location and year for both prey weights and the wet weight ration index indicates that the combined effects of diet and water temperature under 1998 hydrology should have resulted in higher growth rates. Higher growth rates and faster migration times in 1998 may, in turn, have improved survival by reducing predation risk. Higher-flow conditions in 1998 increased the quantity and duration of floodplain rearing area, perhaps reducing resource competition and predator encounter rates. Increased flow duration and magnitude in 1998 could also have improved survival on the floodplain by reducing stranding risks.

These results provide new insight into the significance of seasonal floodplain habitat for salmon rearing, which has been studied primarily in perennial waterways such as estuaries and rivers (Healey 1991; Kjelson et al. 1982). Indeed, this is the first study we are aware of demonstrating that off-channel floodplain provides major habitat for chinook salmon. We do not believe that the benefits of the floodplain to chinook salmon are unique to Yolo Bypass. Initial results from the Cosumnes River, an undammed watershed in the delta, show similar growth enhancements for juvenile chinook salmon that rear on the floodplain rather than in adjacent river channels (Peter Moyle, University of California, Davis, CA 95616, personal communication). Moreover, the benefits of the floodplain to salmon are consistent with findings for other fish species. Sommer et al. (1997) found that the Yolo Bypass provides major spawning, rearing, and foraging habitat for the native cyprinid Sacramento splittail (*Pogonichthys macrolepidotus*). The spawning and rearing of fish on floodplains has been reported in diverse locations that range from small streams (Halyk and Balon 1983; Ross and Baker 1983) to large rivers (Copp and Penaz 1988) in both temperate (Gehrke 1992; Turner et al. 1994) and tropical (Winemiller and Jepsen 1998) locations. The growth ef-

Fig. 5. Feeding success results for Yolo Bypass (open bars) and Sacramento River (solid bars) juvenile salmon during 1998 and 1999. (a) Estimated prey weights in stomach contents. (b) Wet weight ration indices. Means and standard errors are shown.



fects of floodplain habitat have been described for several tropical locations (Welcomme 1979); however, the present study and the results of Gutreuter et al. (2000) represent the only examples from temperate rivers of which we are aware.

Differences between the invertebrate communities in floodplains versus river channels have been reported by Castella et al. (1991). The exceptional production of drift invertebrates on the Yolo Bypass floodplain is consistent with the results of Gladden and Smock (1990), who found that invertebrate production was one to two orders of magnitude greater on the floodplain than in adjacent streams. Although we did not monitor benthic invertebrates, results from other studies of large rivers indicate that benthic biomass may be up to an order of magnitude higher in the floodplain (Junk et al. 1989). The Yolo Bypass drift invertebrate results contrast with the results for zooplankton, which were not particularly abundant on the floodplain. This finding is comparable with that of Welcomme (1979), who reported that densities of zooplankton in natural floodplains are frequently low, except for low-water periods and localized concentrations near habitat interfaces such as shorelines.

The mechanism for greater abundance of drift invertebrates in the Yolo Bypass remains unclear, but is unlikely to be an artifact of land use on the floodplain. Possible explanations for increased drift abundance include increased food supply (e.g., primary production or detritus), more habitat, and longer hydraulic residence times. For each of these mechanisms, Yolo Bypass probably provides functions similar to more "natural" floodplains. Improved food supply is supported by the work of Jassby and Cloern (2000), whose

modeling studies suggest that the Yolo Bypass should have enhanced phytoplankton production as a result of its large surface area and shallow depth. Inputs of fertilizers from agriculture in the Yolo Bypass would not be important contributing factors, as nitrogen and phosphorous are rarely limiting to phytoplankton production in the delta (Ball and Arthur 1979). Like less-disturbed floodplains in other regions (Junk et al. 1989), invertebrate production in the Yolo Bypass may be stimulated by an increased availability of detritus in the food web. Alternatively, the trends in invertebrate abundance we observed may be a consequence of physical differences between floodplain and channel habitat. Inundation of the floodplain may increase the amount of habitat for benthic invertebrates, a major source of drift biomass. Given the larger surface area and lower velocities in Yolo Bypass, the floodplain probably has a much longer hydraulic residence time than the Sacramento River, reducing the rate at which drift invertebrates would be flushed out of the system. Increased habitat area and hydraulic residence time would also have been functional characteristics of the historical floodplain.

In the broader context, the results for salmon and drift invertebrates are consistent with the flood pulse concept, which predicts that floodplains should yield greater fish and invertebrate production than channel habitat (Junk et al. 1989). This finding is significant in that the flood pulse concept was developed primarily on the basis of relatively undisturbed rivers, whereas our study was conducted in a regulated river with a floodplain dominated by agricultural uses. Gutreuter et al. (2000) showed similar enhancements in fish growth from floodplain inundation in the Upper Mississippi River, another large regulated river. These studies suggest that floodplains can maintain important functional characteristics even in heavily modified rivers. In the case of the San Francisco Estuary and its tributaries, we do not claim that floodplain inundation is the primary factor regulating the productivity of the system. The Yolo Bypass floodplain may be seasonally more productive than the Sacramento River for some fish and invertebrates, but we have no data regarding its contribution during dry months or years. Nonetheless, the results of the present study and of Sommer et al. (1997) are sufficient to demonstrate that the floodplain represents one of the most biologically important habitat types in the region. We believe that proposed large-scale restoration activities in the San Francisco Estuary and its tributaries (Yoshiyama et al. 2000) that would increase the area and connectivity of the floodplain offer particular promise for native fish populations such as chinook salmon and Sacramento splittail.

### Acknowledgements

This study would not have been successful without the contributions of staff from the Interagency Ecological Program, including the California Department of Water Resources Environmental Services Office, the California Department of Fish and Game, and the University of California at Davis. We owe particular thanks to R. Kurth, P. Moyle, and R. Brown for their assistance and support. Sacramento River and Chipps Island sampling and data reduction by P. Brandes, M. Pierce, and R. Burmester of the U.S. Fish

and Wildlife Service (Stockton, CA) were especially valuable. The field assistance of C. Messer, K. Malchow, F. Feyrer, L. Grimaldo, D. McEwan, R. Miller, C. Peregrin, V. Johannsen, and S. Kawasaki is gratefully acknowledged. W. Fields identified the drift samples. Funding was provided by the Interagency Ecological Program and the CALFED Category III program.

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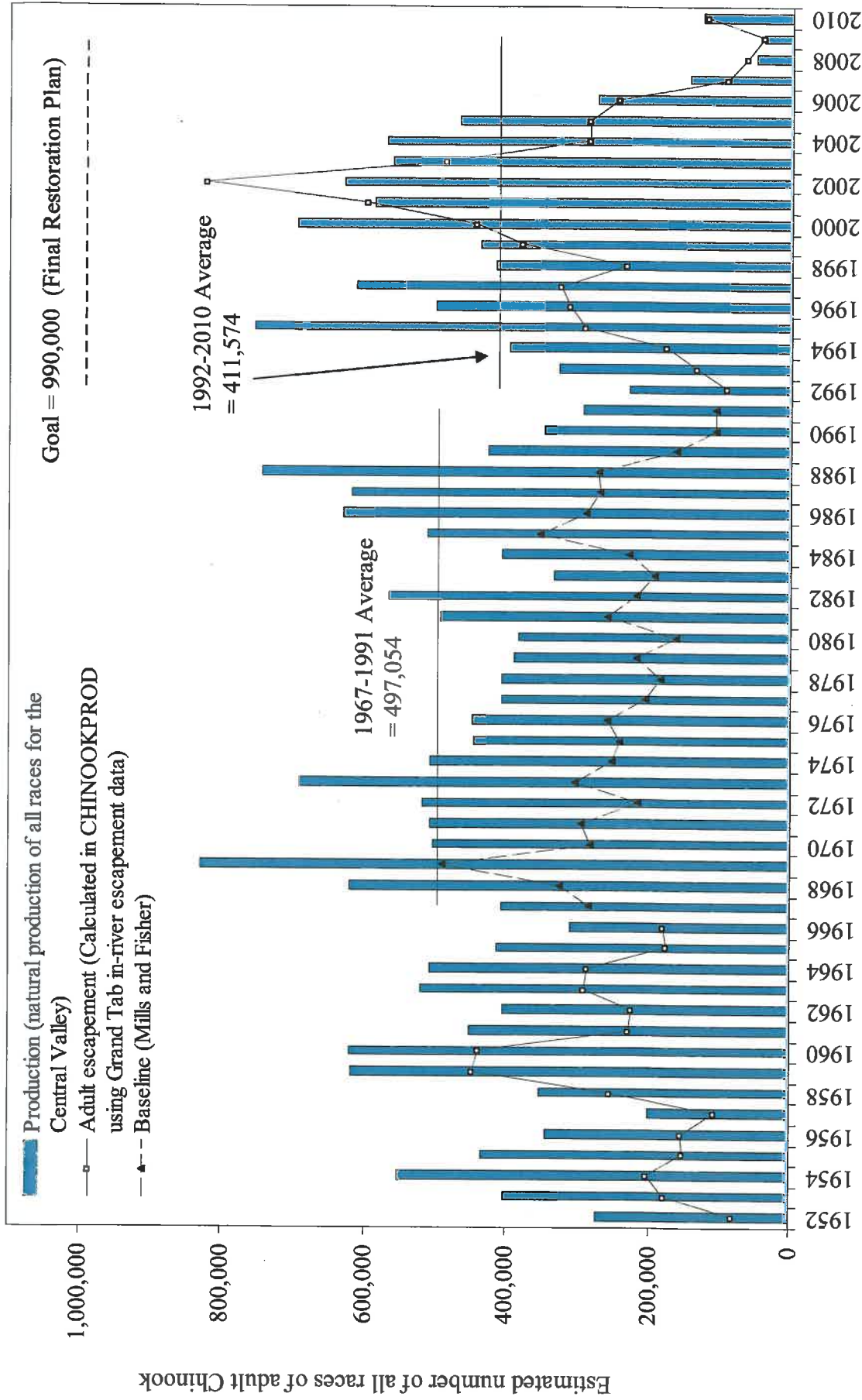


Figure 1. Estimated yearly natural production and in-river escapement of all races of adult Chinook Salmon in the Central Valley rivers and streams. 1952 - 1966 and 1992 - 2010 numbers are calculated in CHINOOKPROD using CDFG Grand Tab in-river escapement data (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

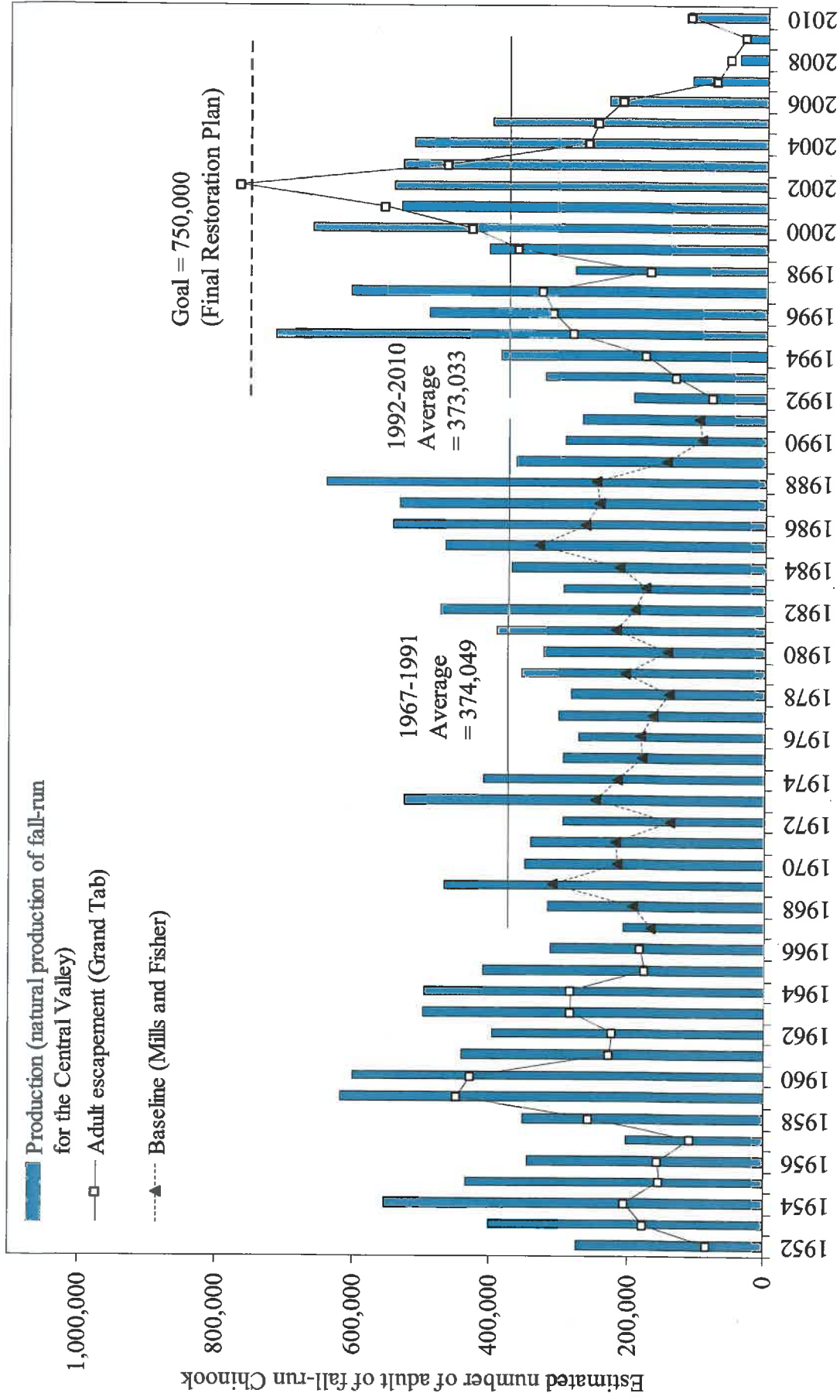


Figure 2. Estimated yearly natural production and in-river escapement of adult fall-run Chinook salmon in the Central Valley rivers and streams. 1952 - 1966 and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

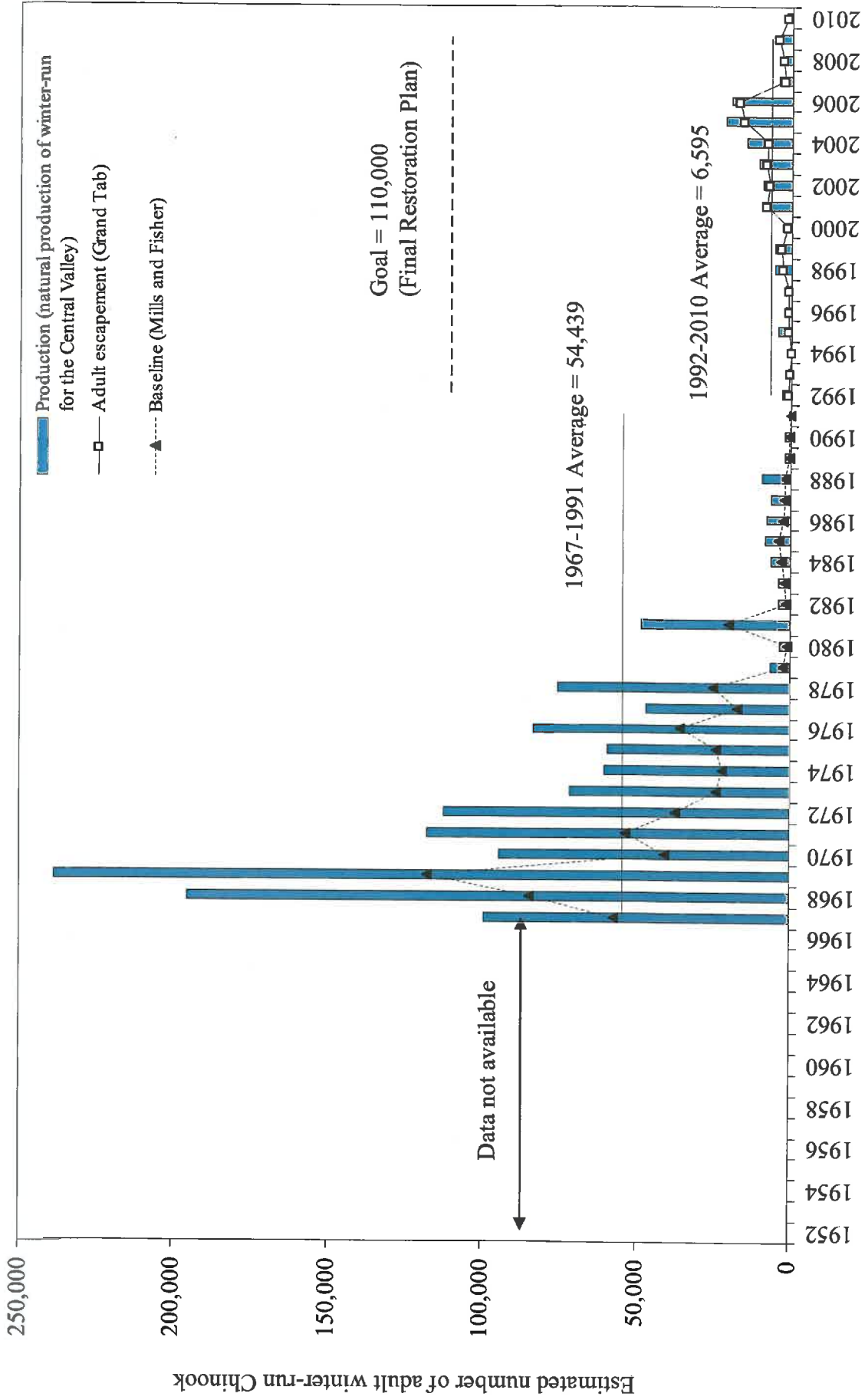


Figure 3. Estimated yearly natural production and in river escapement of adult winter-run Chinook salmon in the Central Valley rivers and streams. 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967-1991) are from Mills and Fisher (CDFG, 1994).

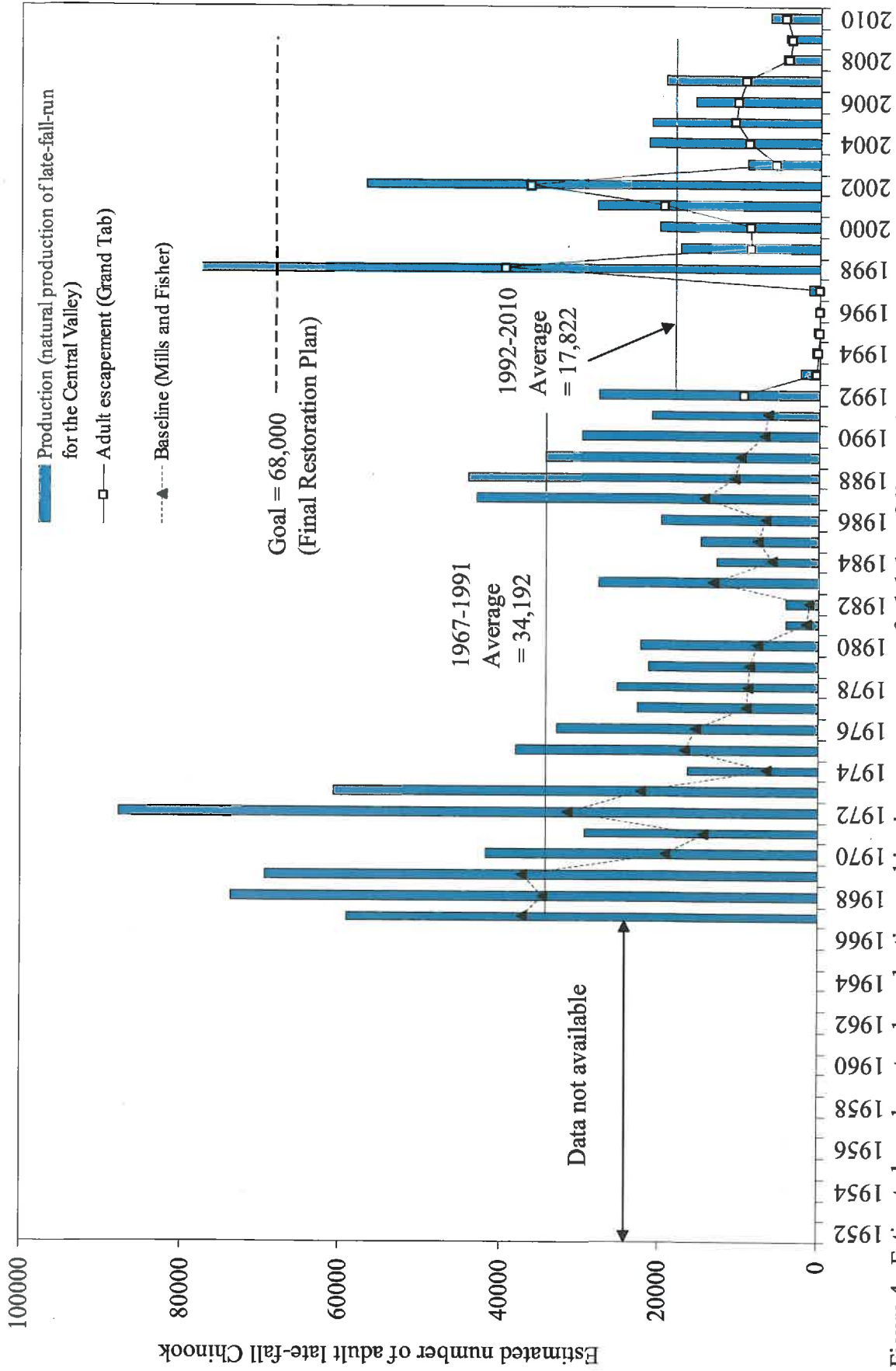


Figure 4. Estimated yearly natural production and in-river escapements of adult late-fall-run Chinook salmon in the Central Valley rivers and streams. 1992 – 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).



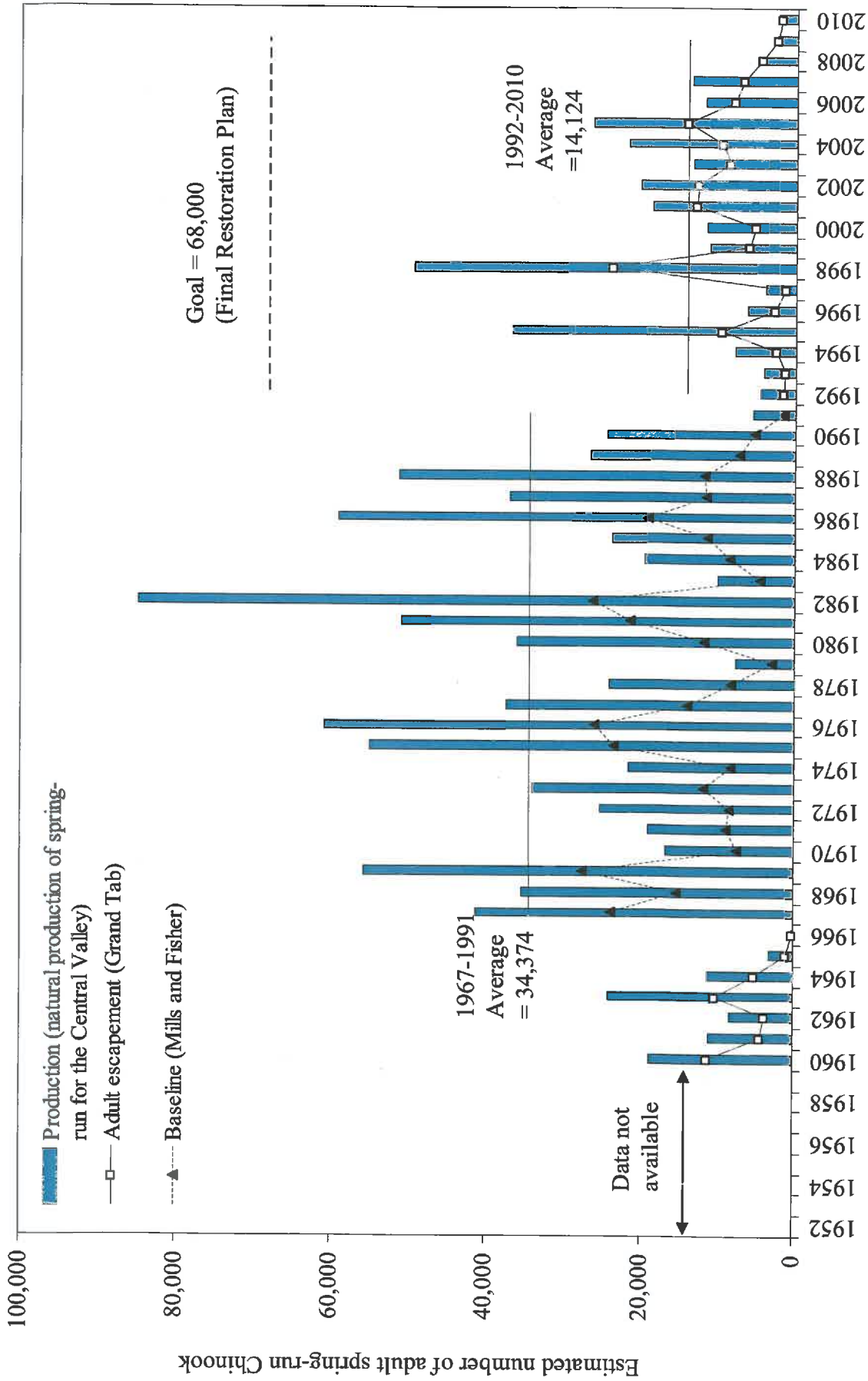


Figure 5. Estimated yearly natural production and in-river escapement of adult spring-run Chinook salmon in the Central Valley rivers and streams. 1960 - 1966 and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

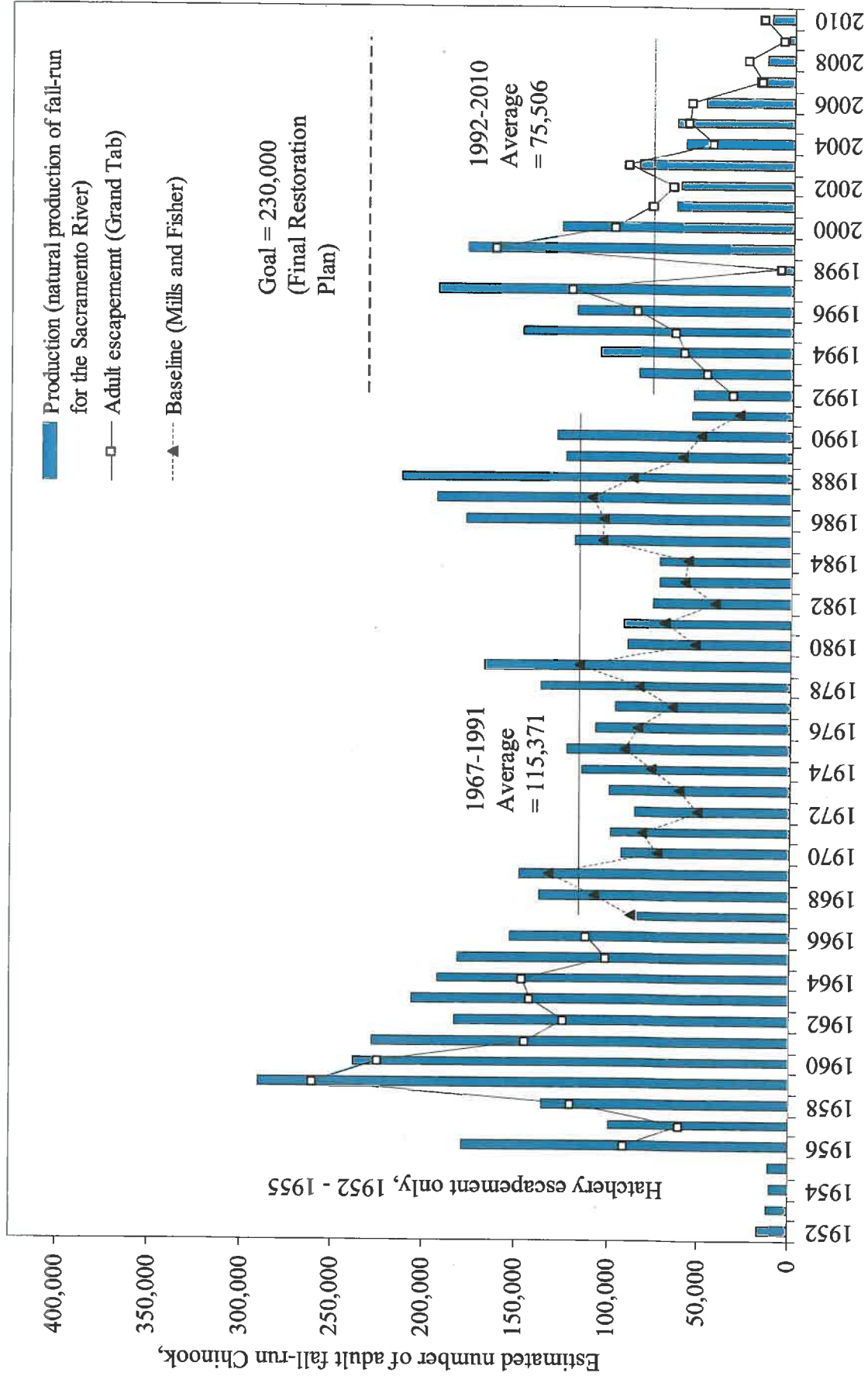


Figure 6. Estimated yearly natural production and in-river escapement for the entire mainstem Sacramento River adult fall-run Chinook salmon. 1952 - 1966 and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

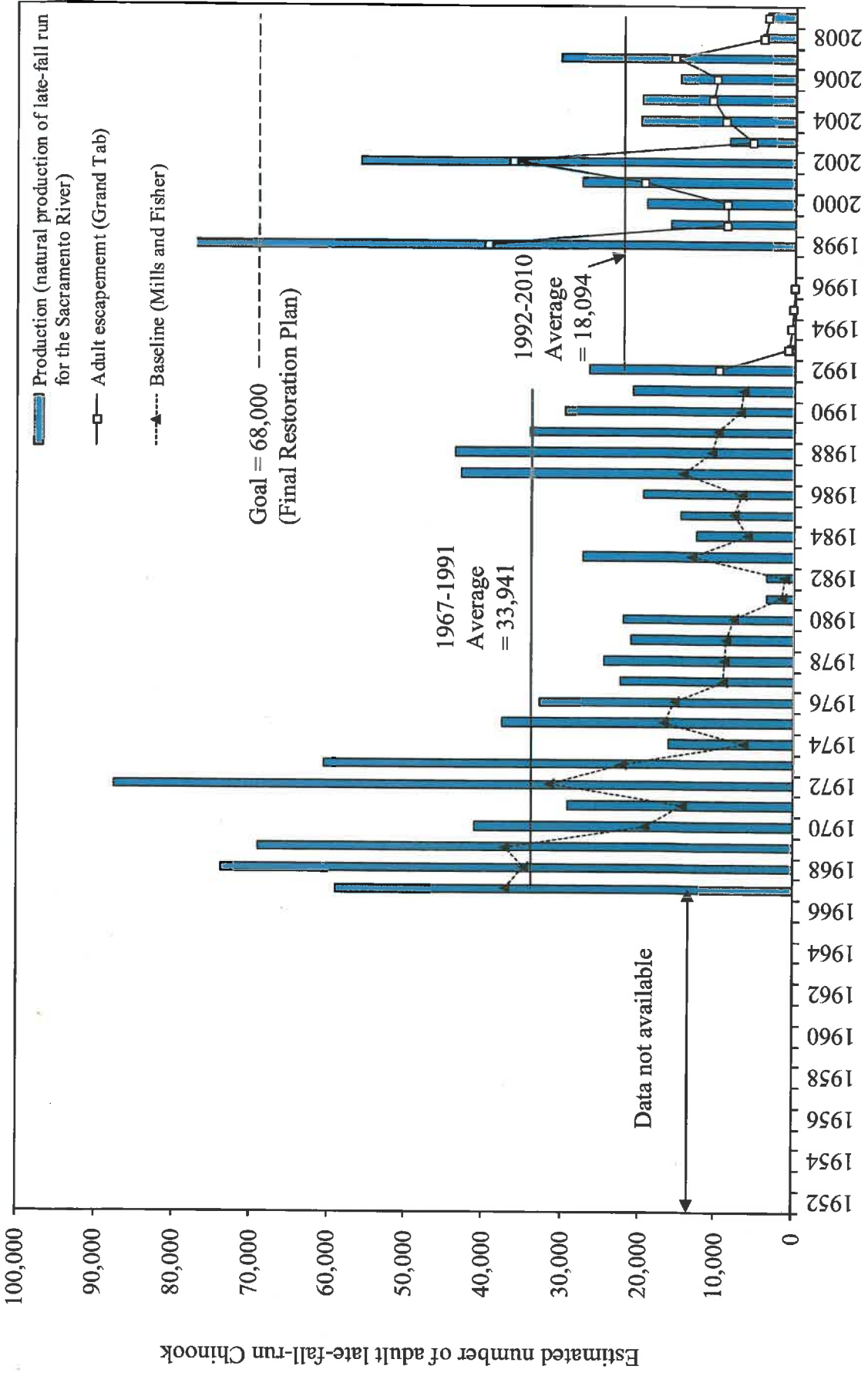


Figure 7. Estimated yearly natural production and in-river adult escapement for above RBDD mainstem Sacramento River late-fall-run Chinook salmon. 1992 -2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

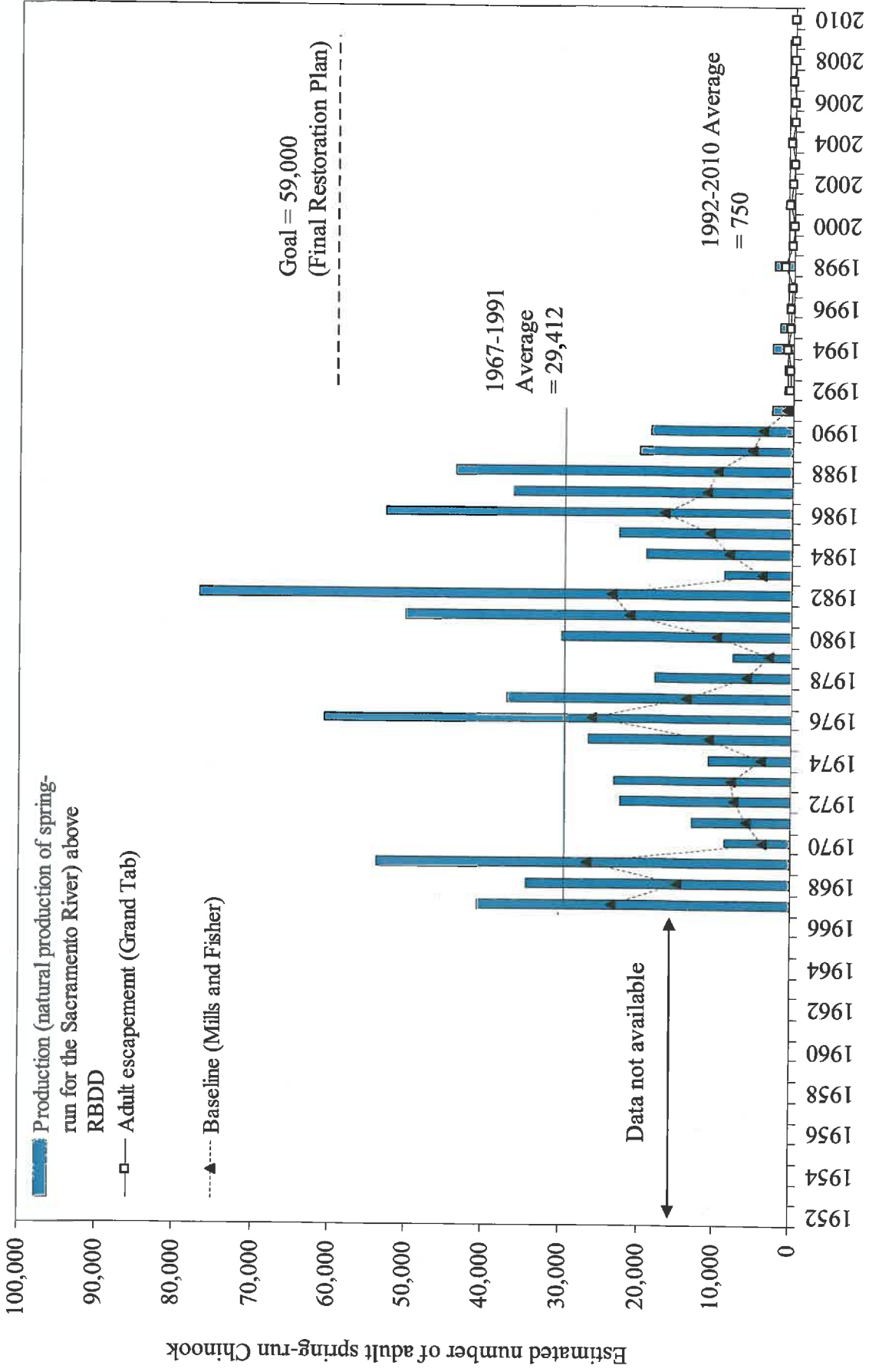


Figure 8. Estimated yearly natural production and in river adult escapement for above RBDD mainstem Sacramento River spring-run Chinook salmon. 1992-2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

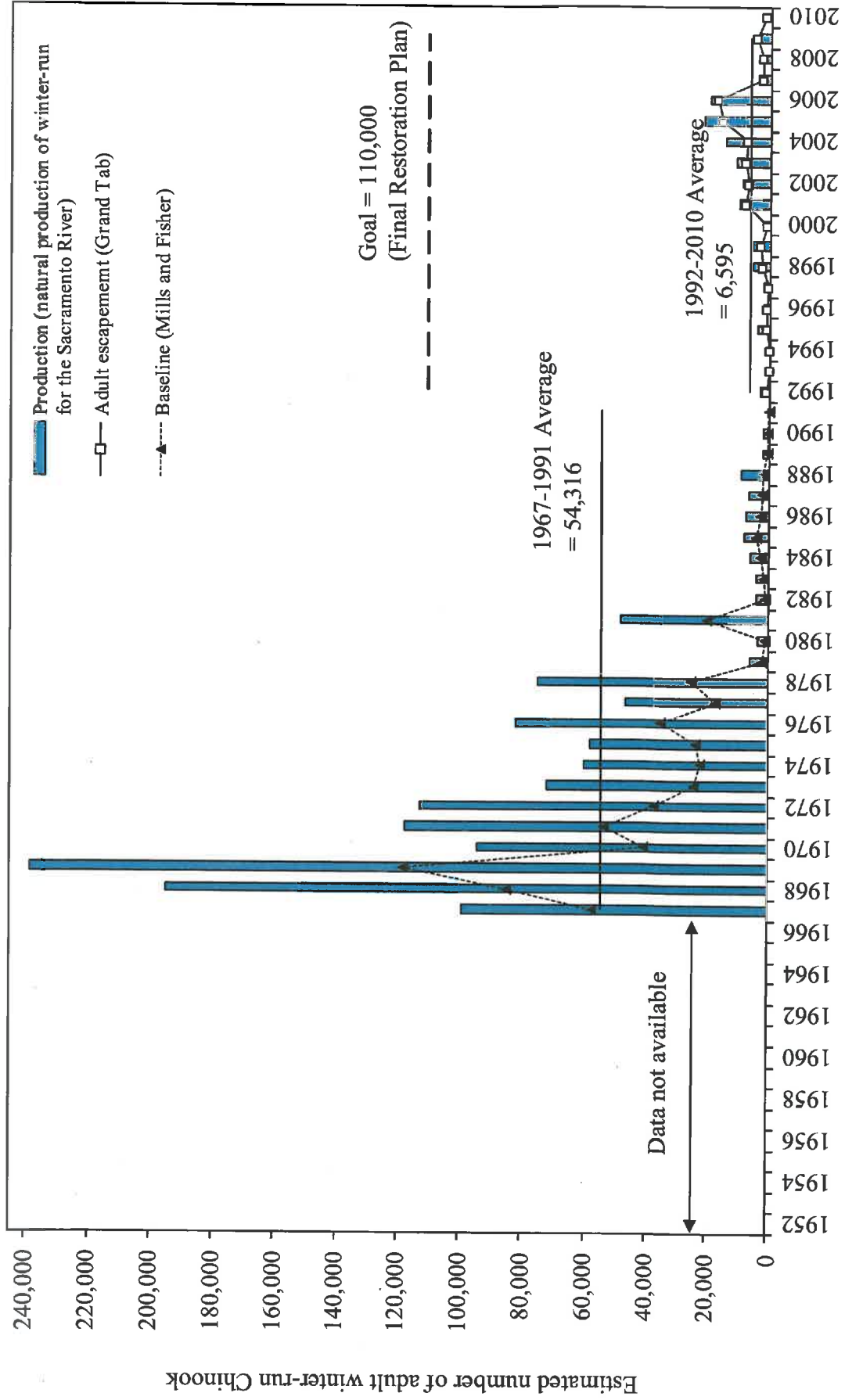


Figure 9. Estimated yearly natural production and in river adult escapement for above RBDD mainstem Sacramento River winter-run Chinook salmon. 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

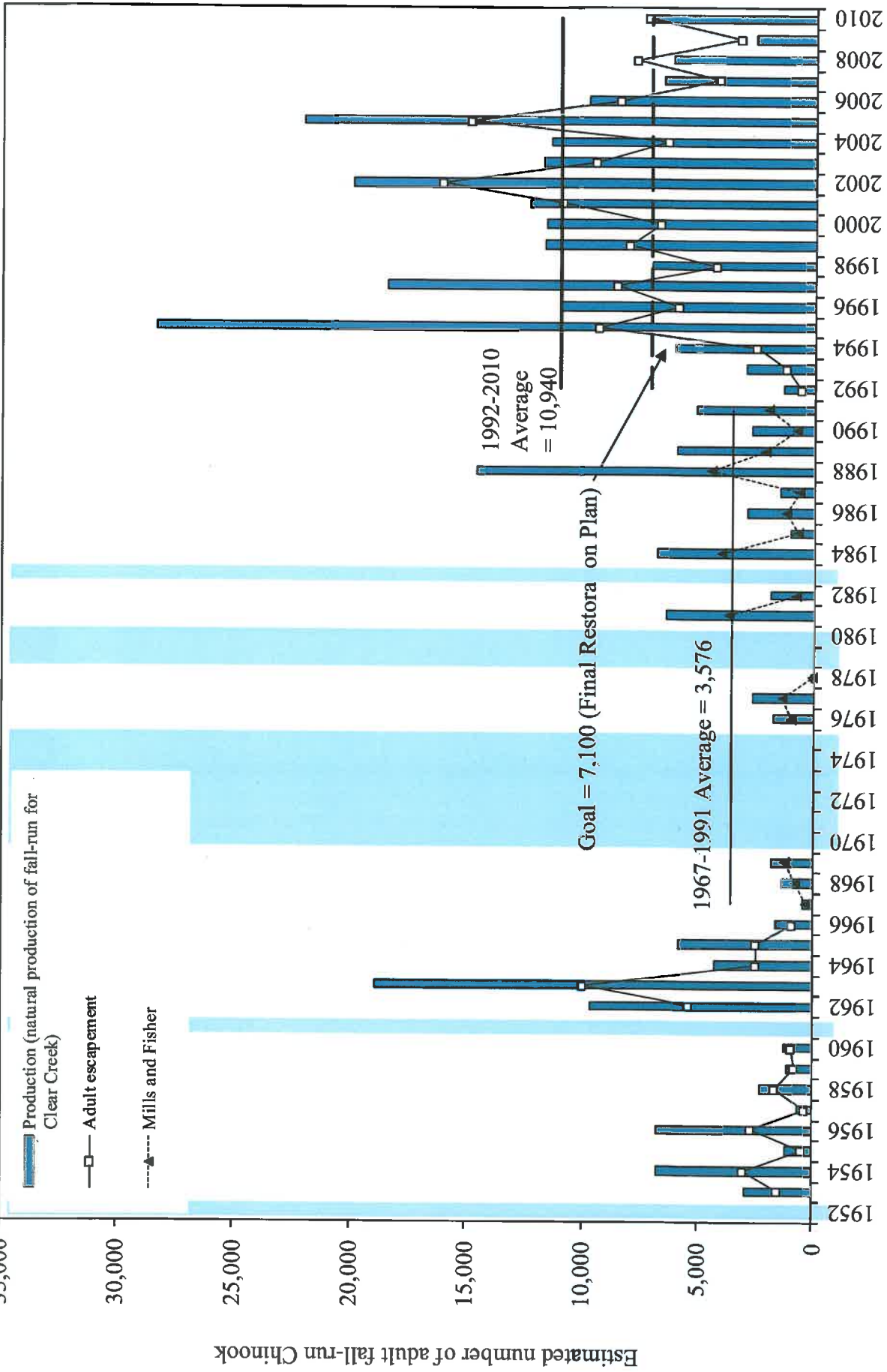


Figure 10. Estimated yearly natural production and in river adult escapement of Clear Creek fall-run Chinook salmon. = data was not available for 1952, 1961, 1970-1975, 1979, 1980, 1983, 1983 - 1966 and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

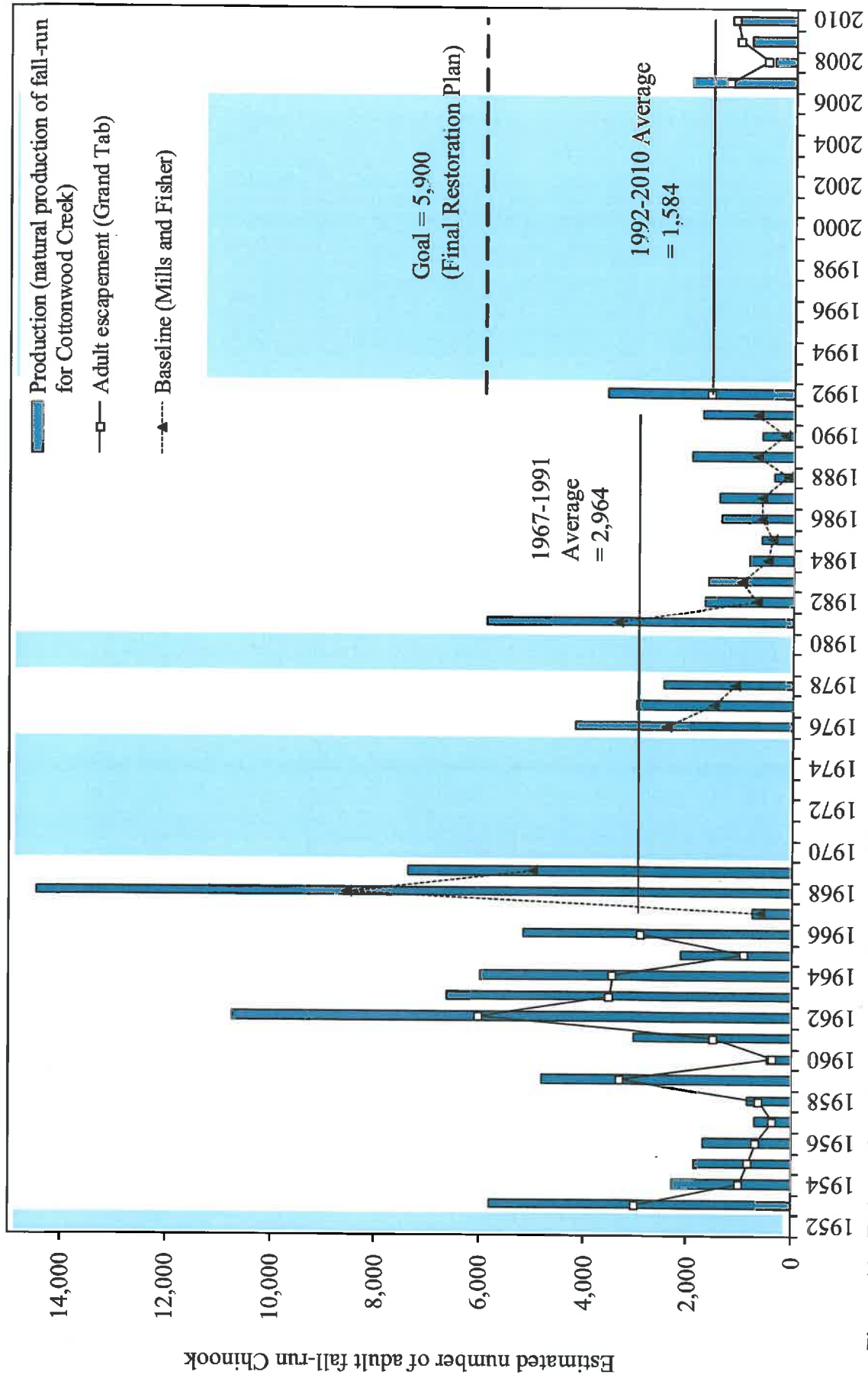


Figure 11. Estimated yearly natural production and in river adult escapement of Cottonwood Creek fall-run Chinook salmon. = data was not available for 1952, 1970 - 1975, 1979 - 1980 and 1993 - 2005. 1952 - 1966 and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

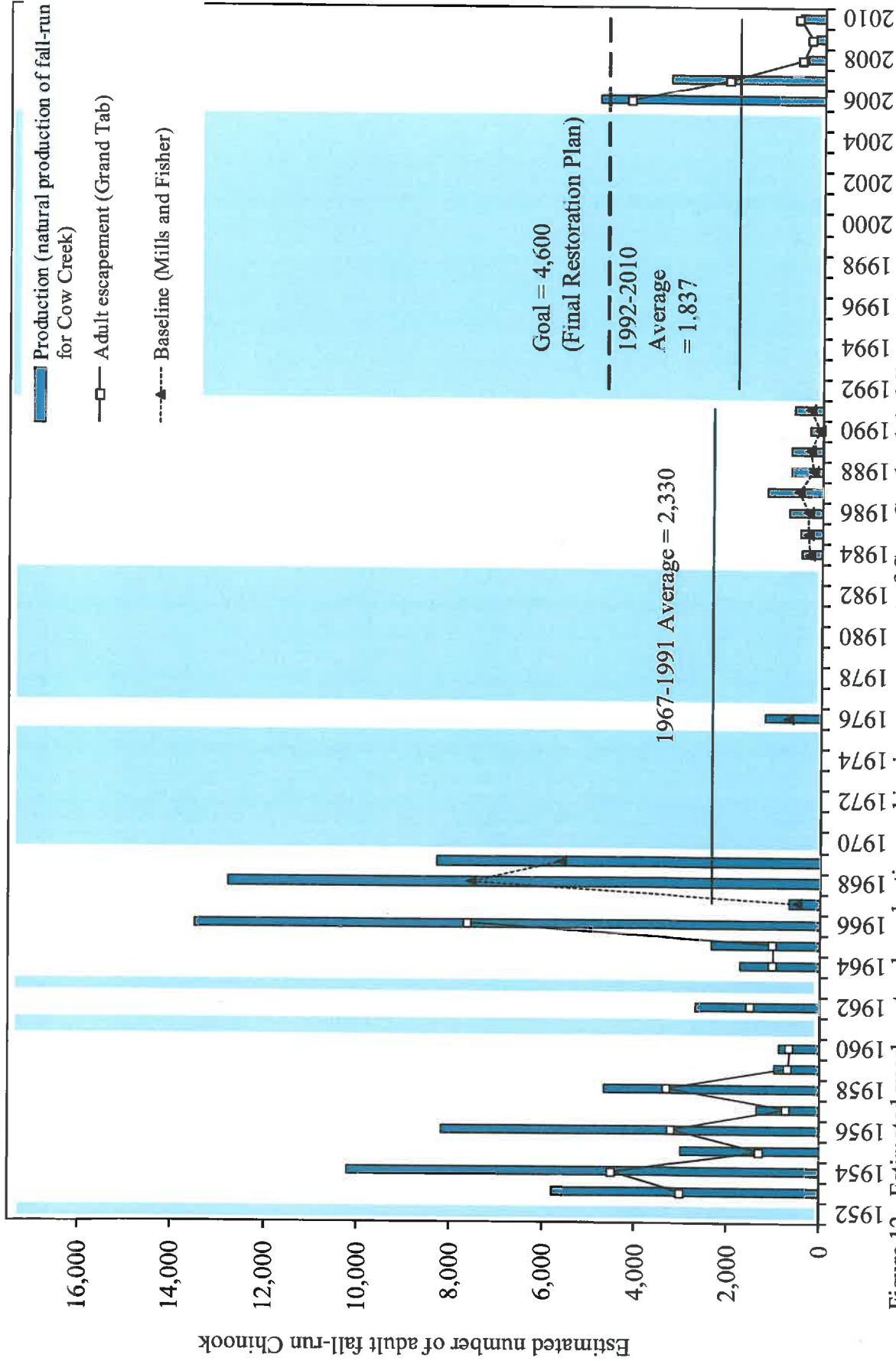


Figure 12. Estimated yearly natural production and in river escapement of Cow Creek adult fall-run Chinook salmon. = data was not available for 1952, 1961, 1963, 1970 - 1975, 1977 - 1983, and 1992 - 2005. 1952 - 1966 and 1992-2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).



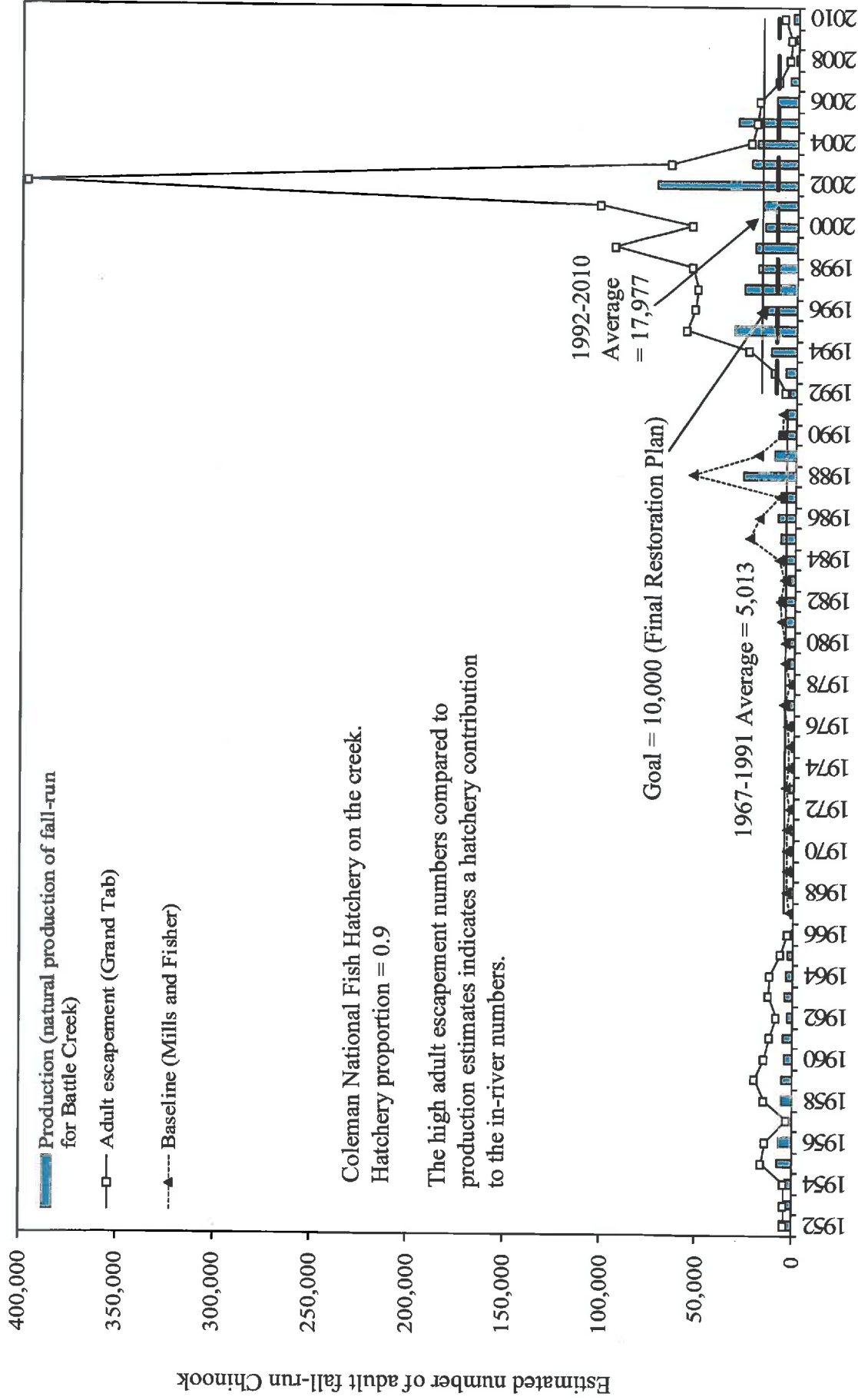


Figure 13. Estimated yearly natural production and in river escapement of Battle Creek adult fall-run Chinook salmon. 1952 - 1966 and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

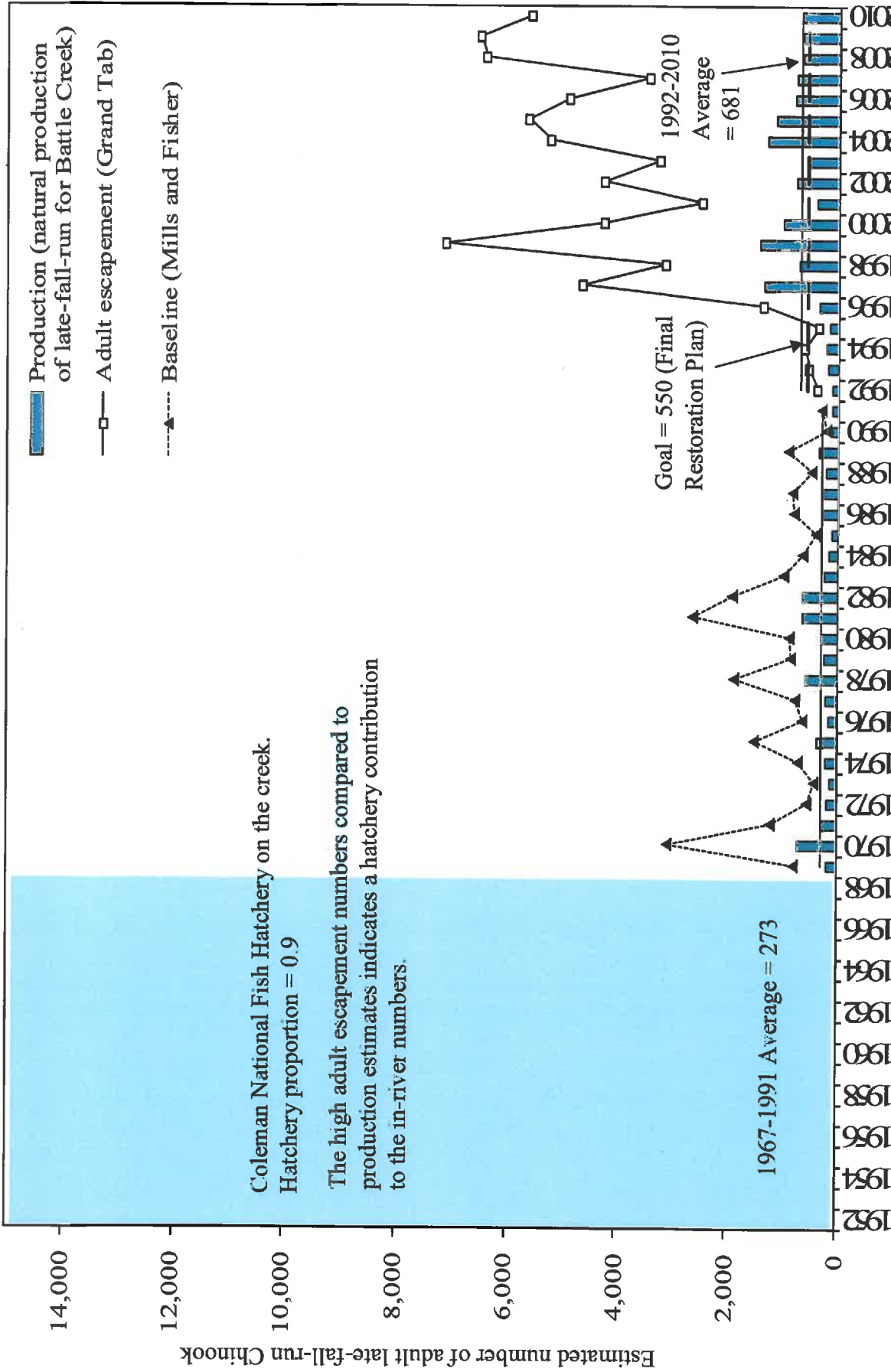


Figure 14. Estimated yearly natural production calculated from hatchery returns (in river returns were available starting in 2000) and hatchery returns of Battle Creek adult late-fall-run Chinook salmon. 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). = data was not available for 1952-1968. Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

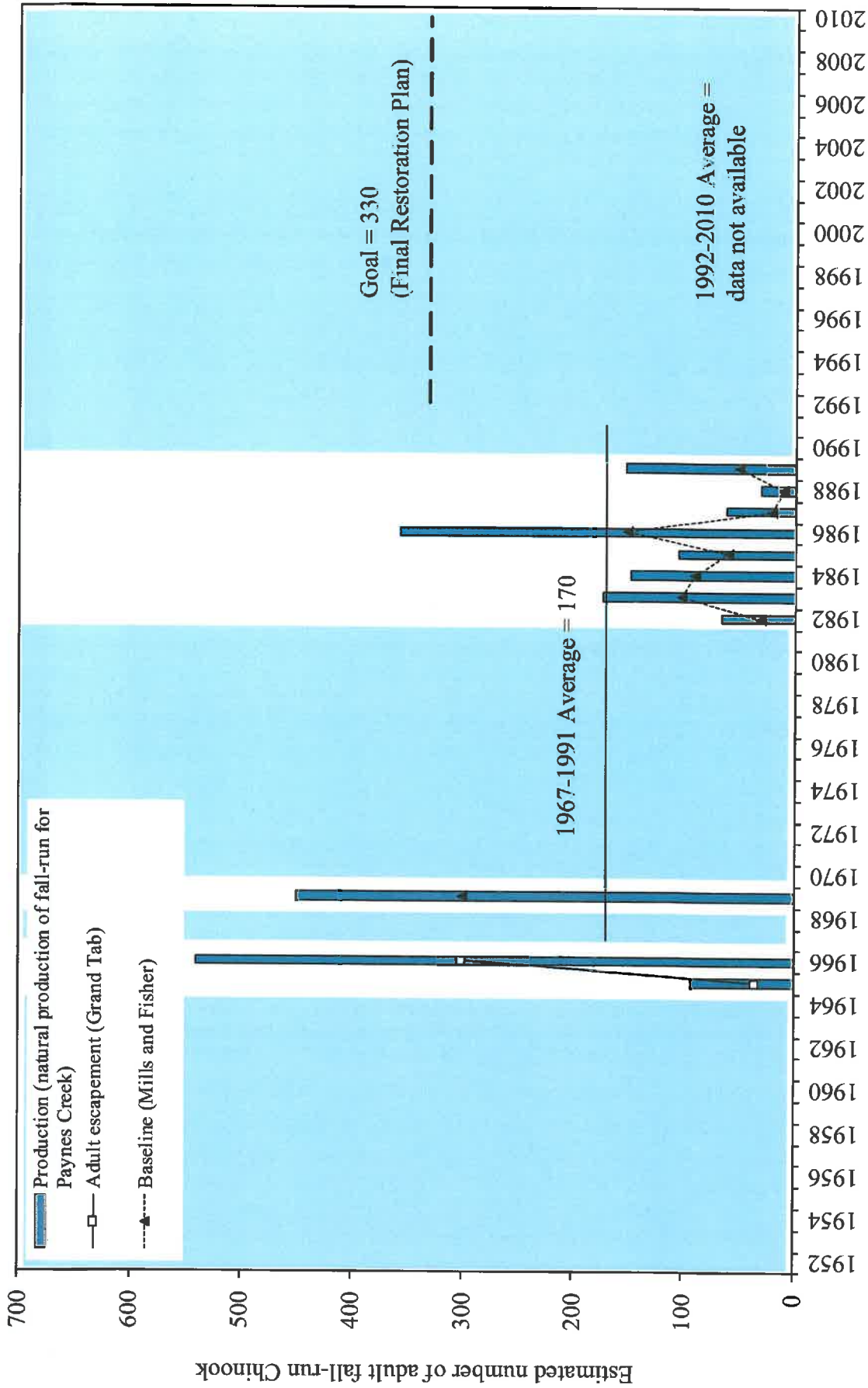


Figure 15. Estimated yearly natural production and in river escapement of Paynes Creek adult fall-run Chinook salmon. [ ] = data was not available for 1952 - 1964, 1967 - 1968, 1970 - 1981, and 1990 - 2010 1965-1966 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

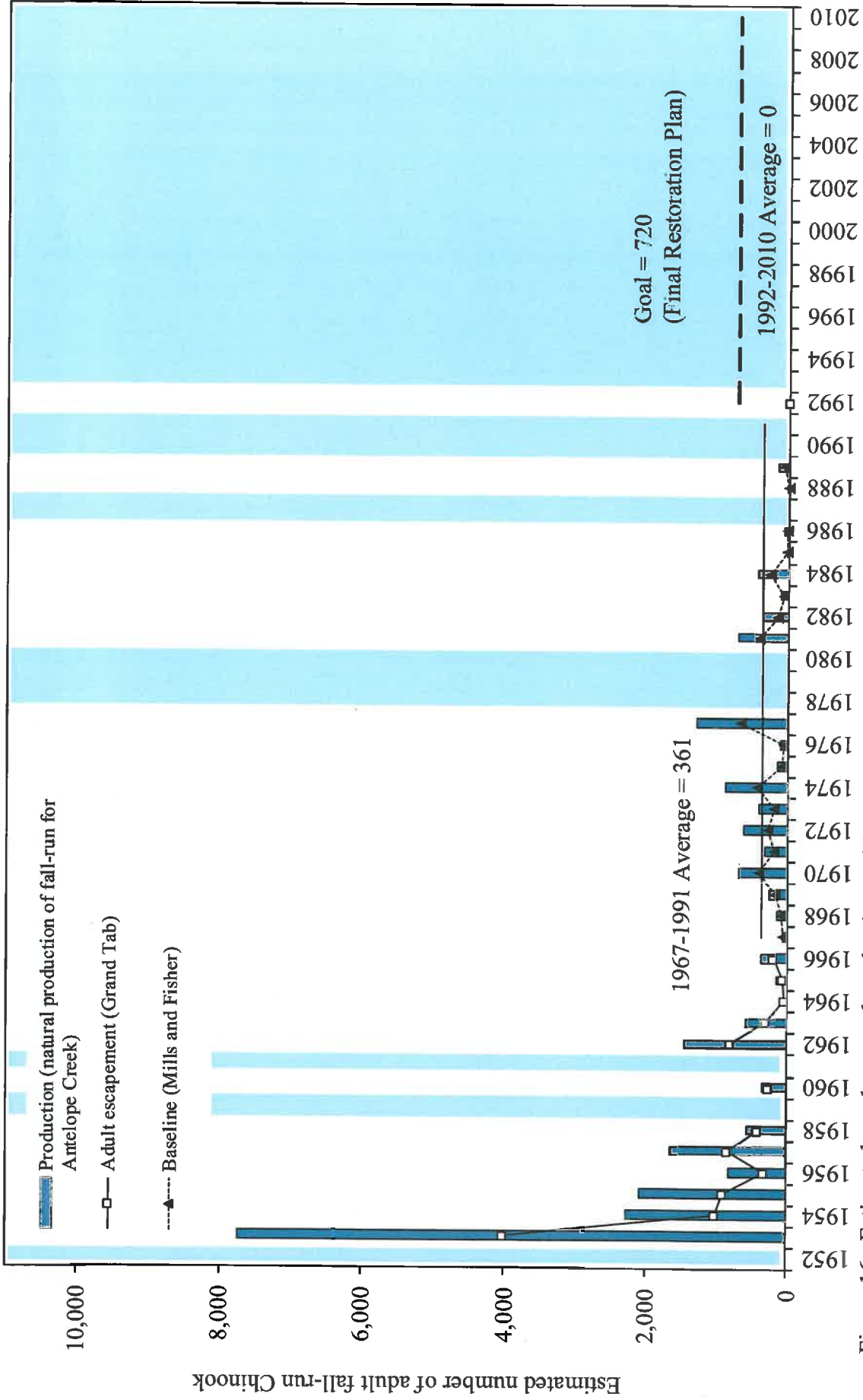


Figure 16. Estimated yearly natural production and in river escapement of Antelope Creek adult fall-run Chinook salmon. = data was not available for 1952, 1959, 1961, 1978 - 1980, 1987, 1990, 1991, and 1993 - 2010. 1952 - 1966 and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

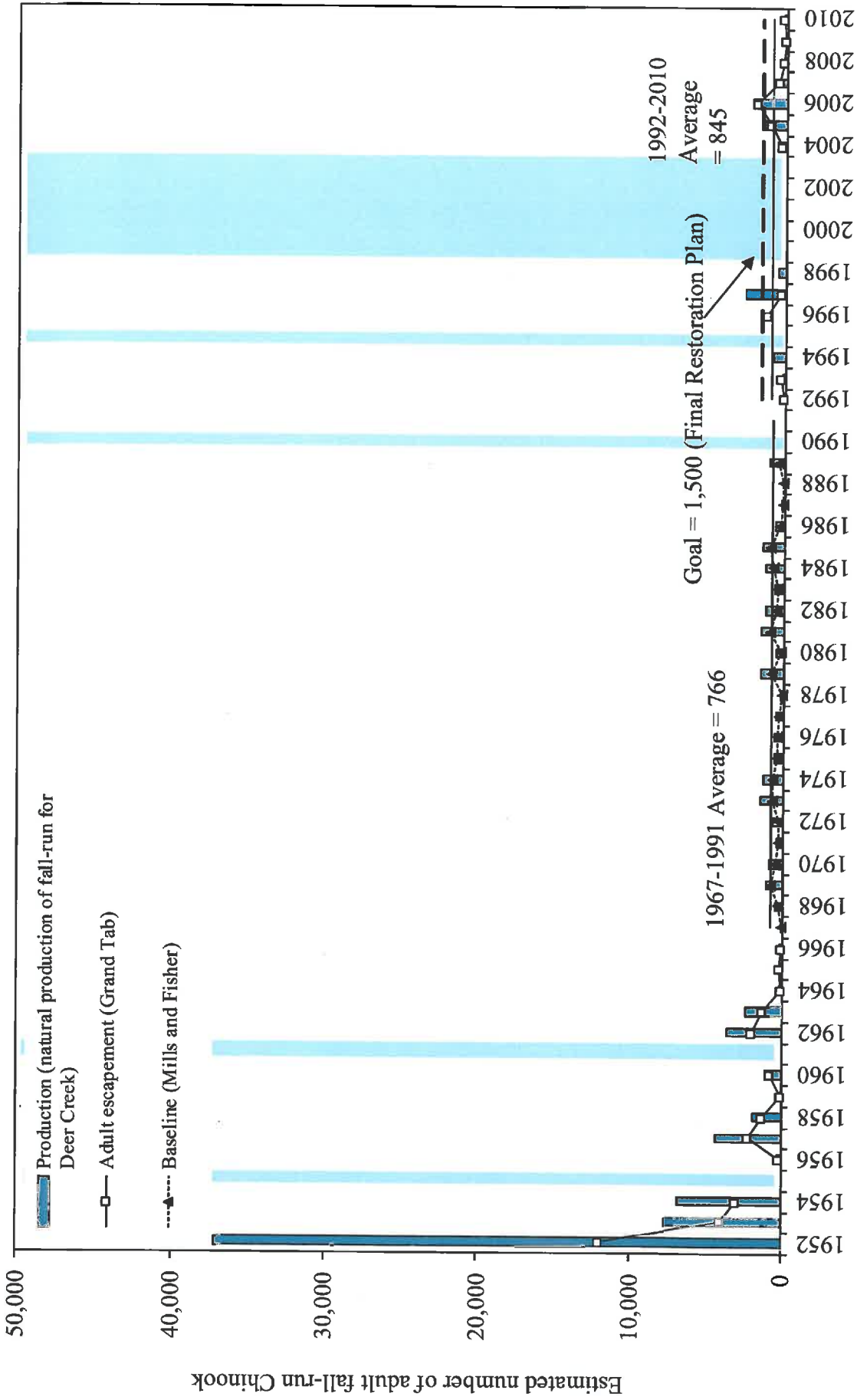


Figure 17. Estimated yearly natural production and in river escapement of Deer Creek adult fall-run Chinook salmon. [ ] = data was not available for 1955, 1961, 1990 - 1992, 1995, 1996, and 1999 - 2003. 1952 - 1966 and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

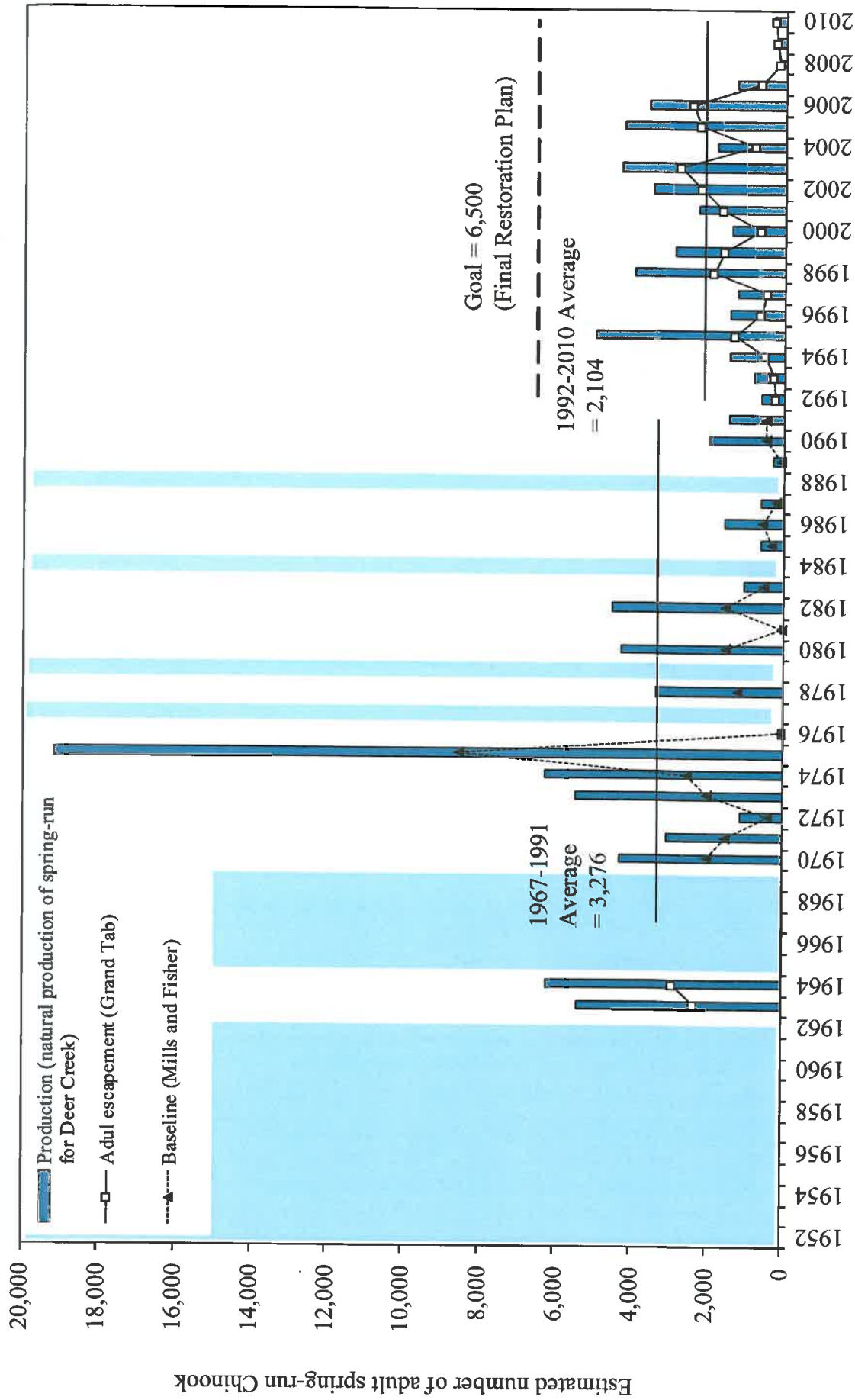


Figure 18. Estimated yearly natural production and in river escapement of Deer Creek adult spring-run Chinook salmon. = data was not available for 1952 - 1962, 1965 - 1969, 1977, 1979, 1984, and 1988. 1952 - 1966, and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

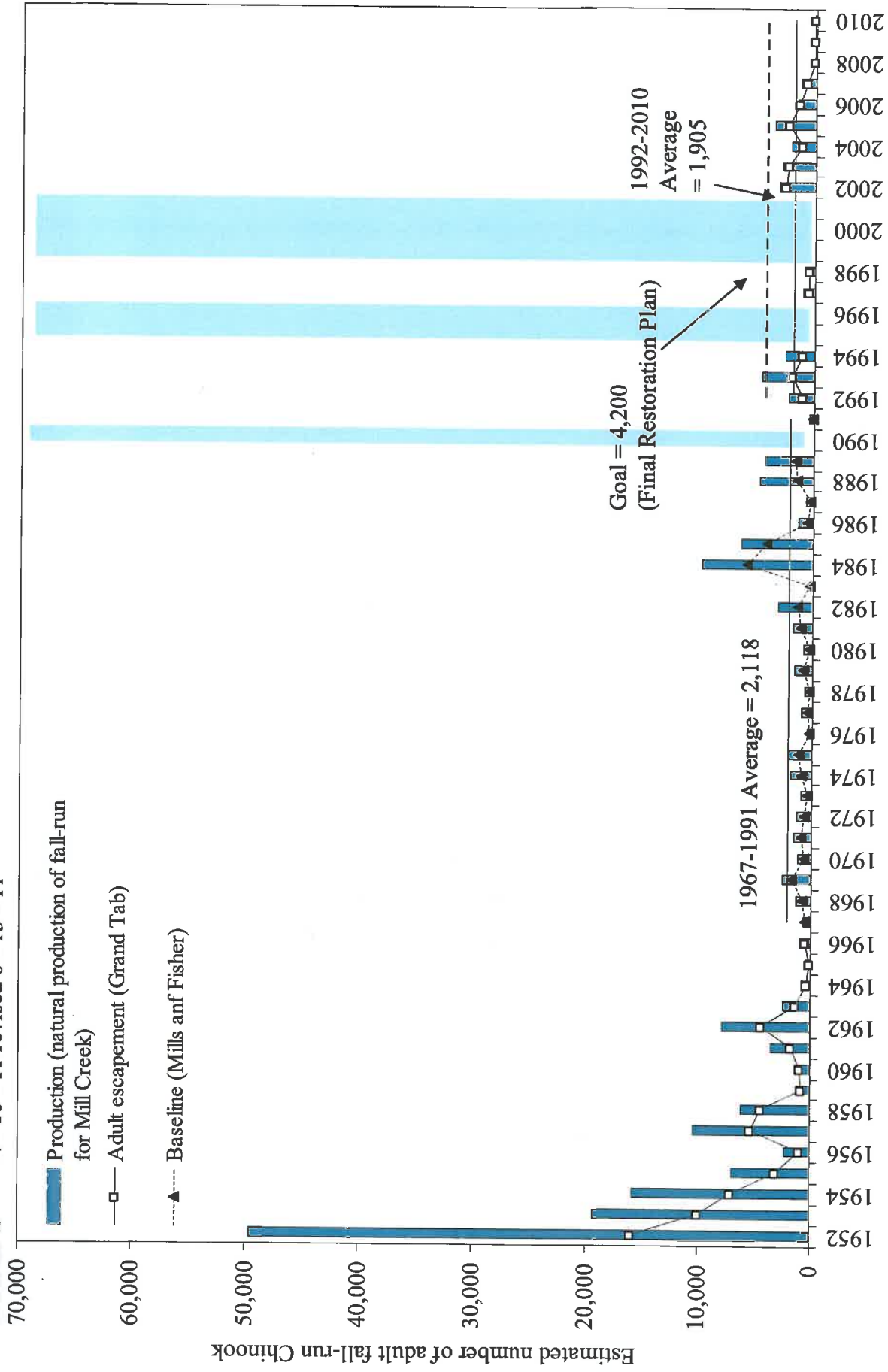


Figure 19. Estimated yearly natural production and in river escapement of Mill Creek adult fall-run Chinook salmon. = data was not available for 1990, 1995 - 1996, and 1999 - 2001. 1952 - 1966 and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

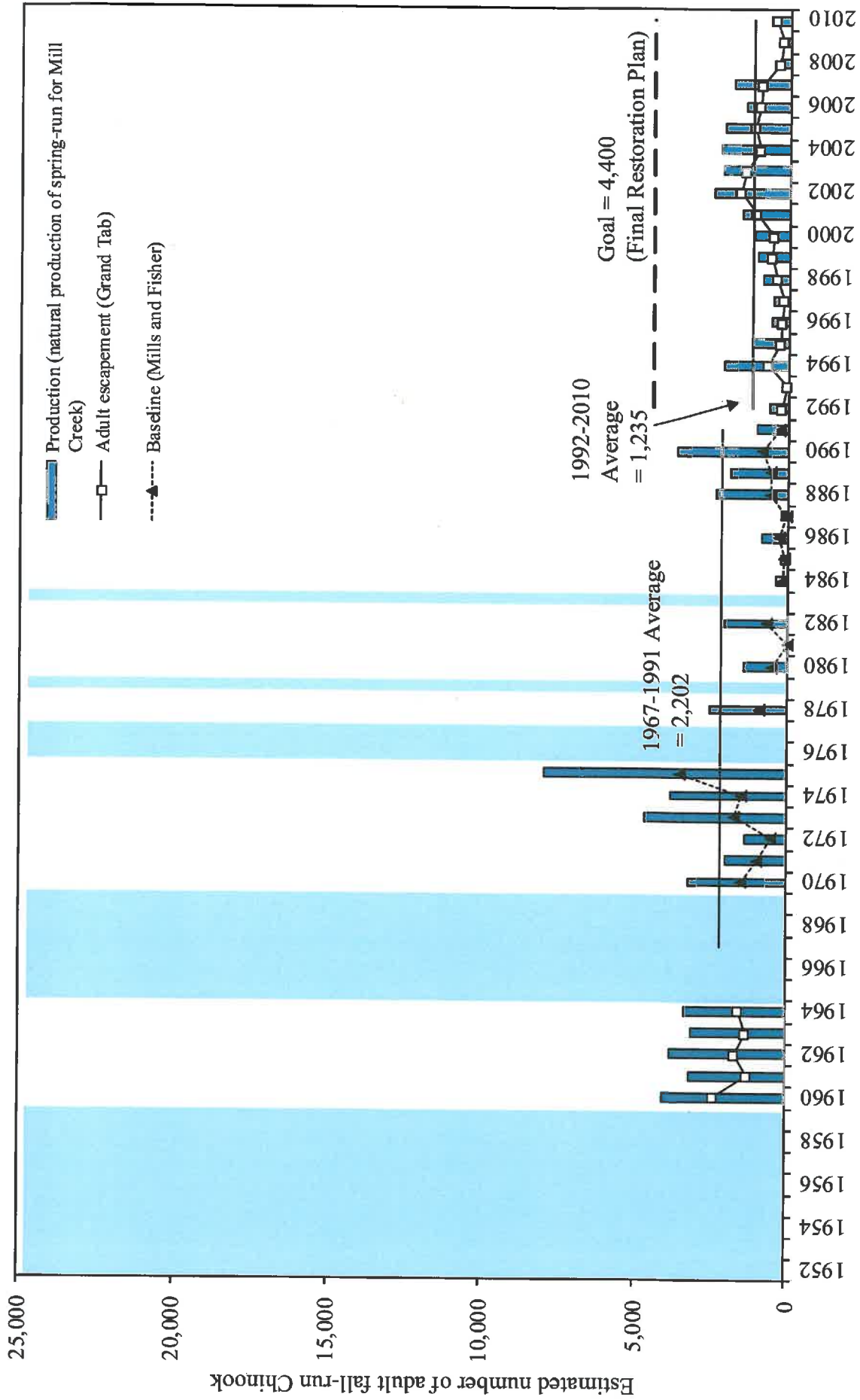


Figure 20. Estimated yearly natural production and in river escapement of Mill Creek adult spring-run Chinook salmon.

□ = data was not available for 1952 - 1959, 1965 - 1969, 1976, 1977, 1979, and 1983. 1952 - 1966 and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).



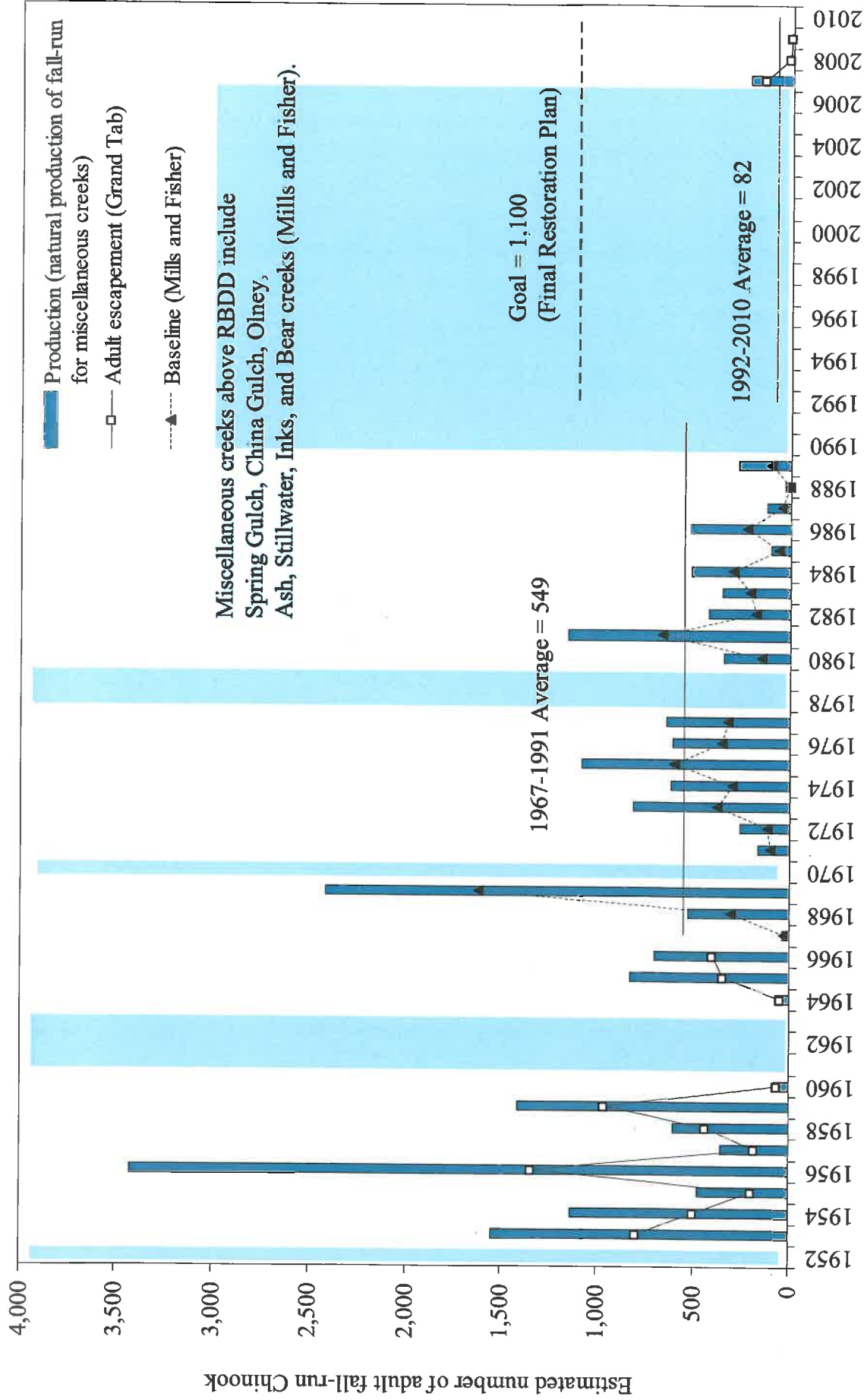


Figure 21. Estimated yearly natural production of miscellaneous creeks adult fall-run Chinook salmon above RBDD. = data was not available for 1952 - 1955, 1963 - 1968 and 1970 - 2006. 1952 - 1966 and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

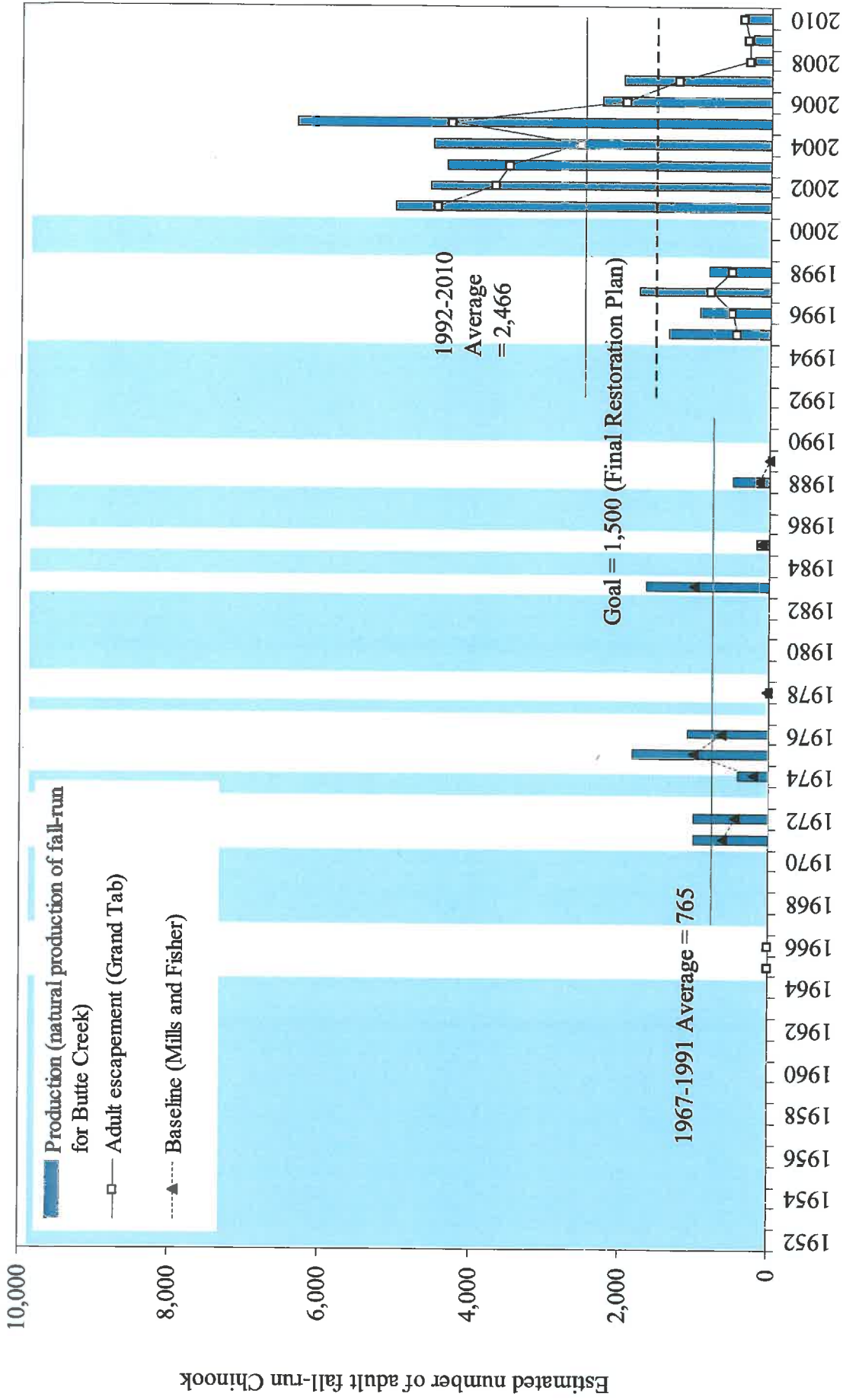


Figure 22. Estimated yearly natural production and in river escapement of Butte Creek adult fall-run Chinook salmon. [ ] = data was not available for 1952 - 1964, 1967 - 1970, 1973, 1977, 1979 - 1982, 1984, 1986, 1987, 1990 - 1994, and 1999 - 2001. 1952 - 1966 and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

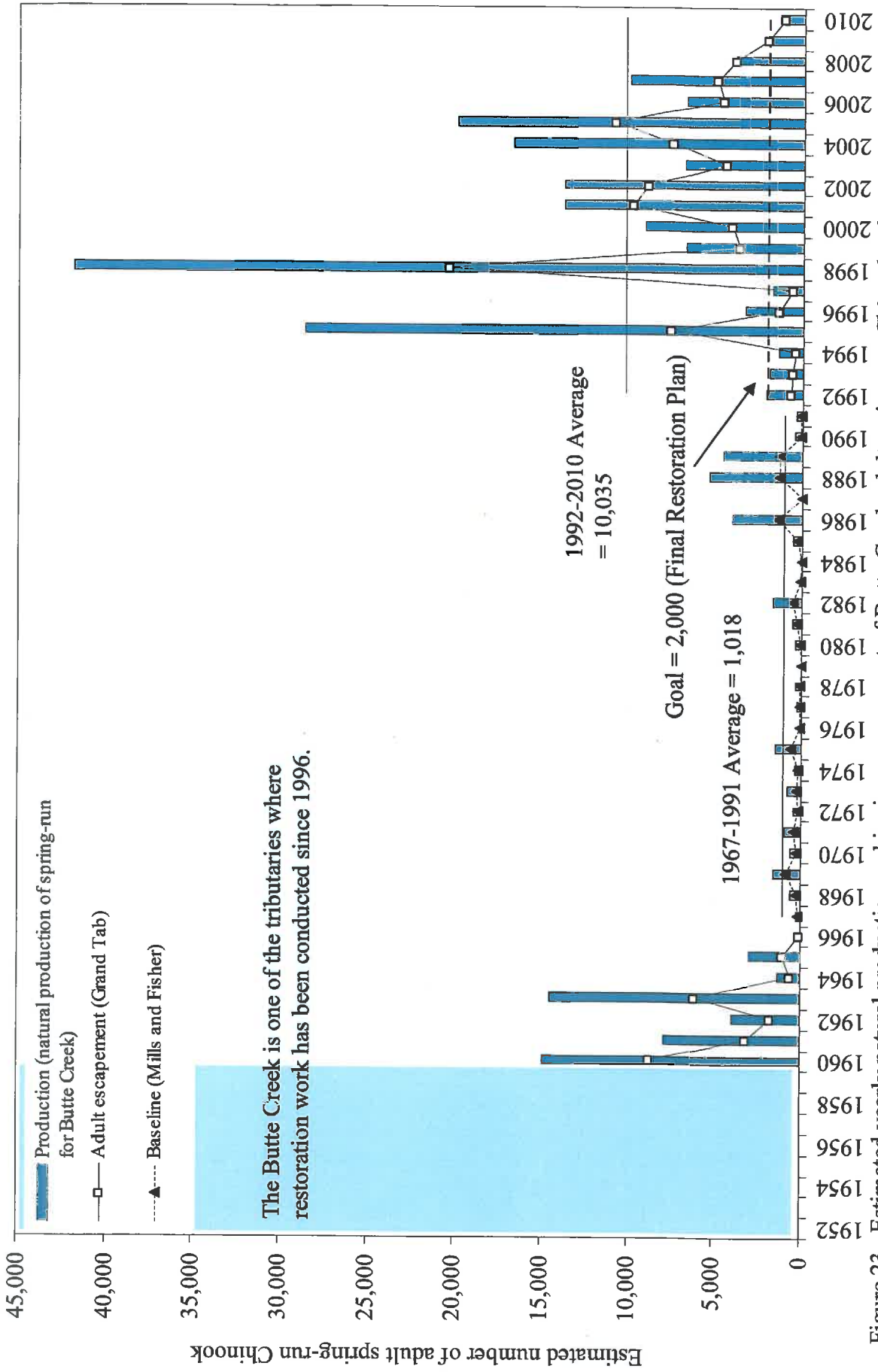


Figure 23. Estimated yearly natural production and in river escapement of Butte Creek adult spring-run Chinook salmon. 1952 - 1966 and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). [light blue box] = data was not available for 1952 - 1959. Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

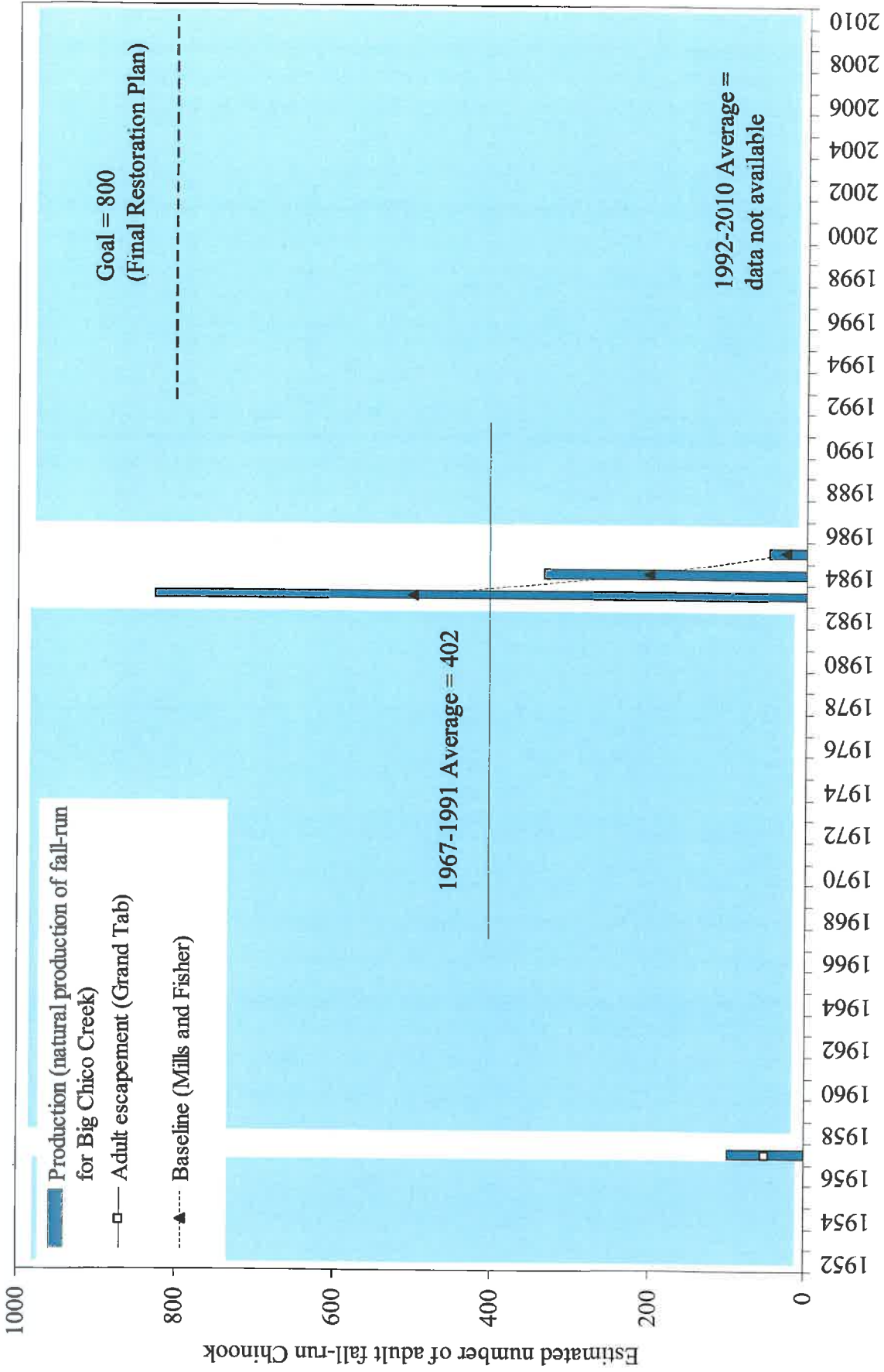


Figure 24. Estimated yearly natural production, and in river escapements of Big Chico Creek adult fall-run Chinook salmon. = data was not available for 1952 - 1956, 1958 - 1982, and 1986 - 2009. 1952 - 1966 and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

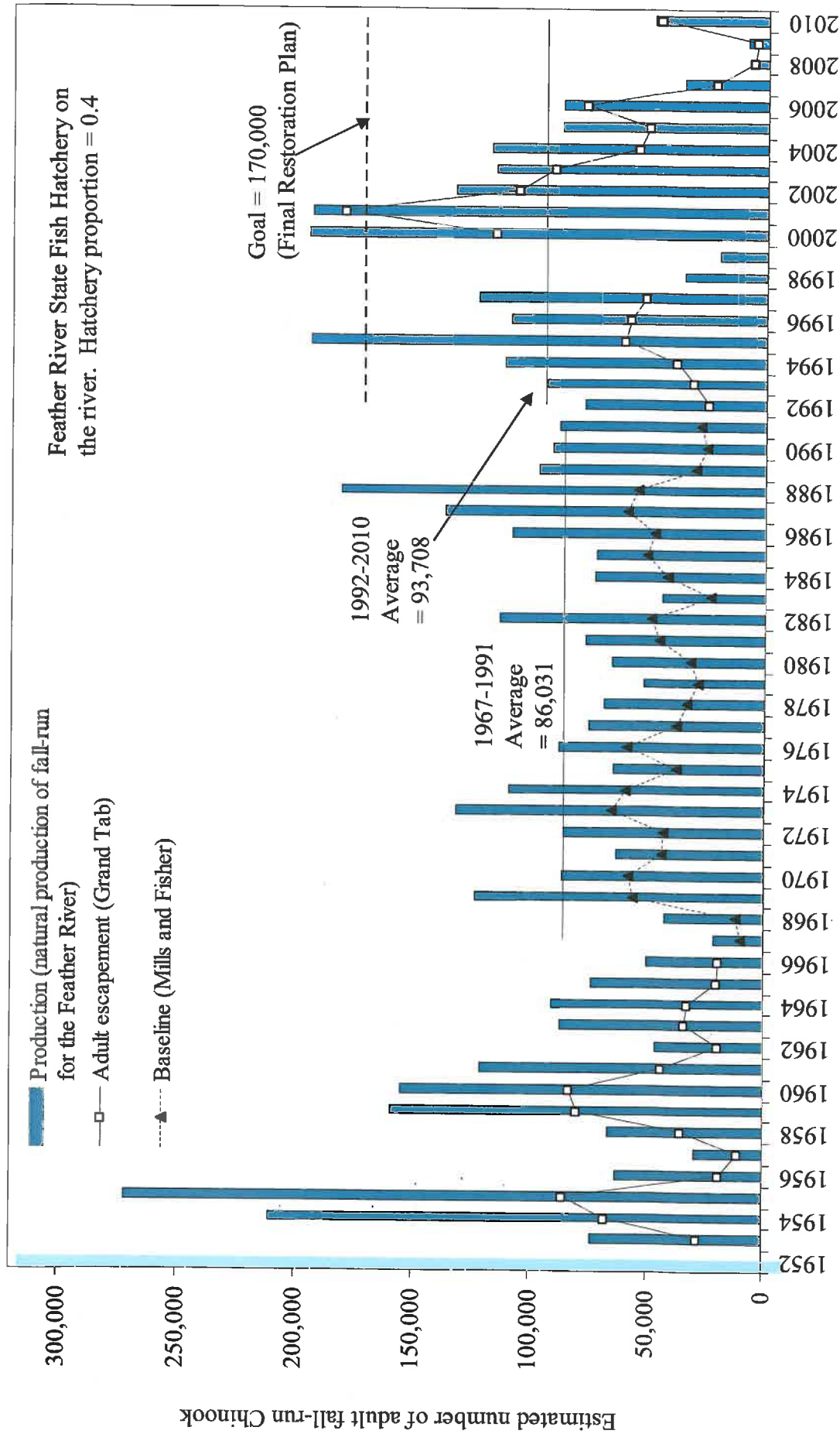


Figure 25. Estimated yearly natural production, and in river escapements of Feather River adult fall-run Chinook salmon. In-river escapements were not available for 1998 and 1999. 1952 - 1966 and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994). 1998 and 1999 are hatchery escapement only. Starting in 2005 only fall-run returns are used for hatchery escapement.

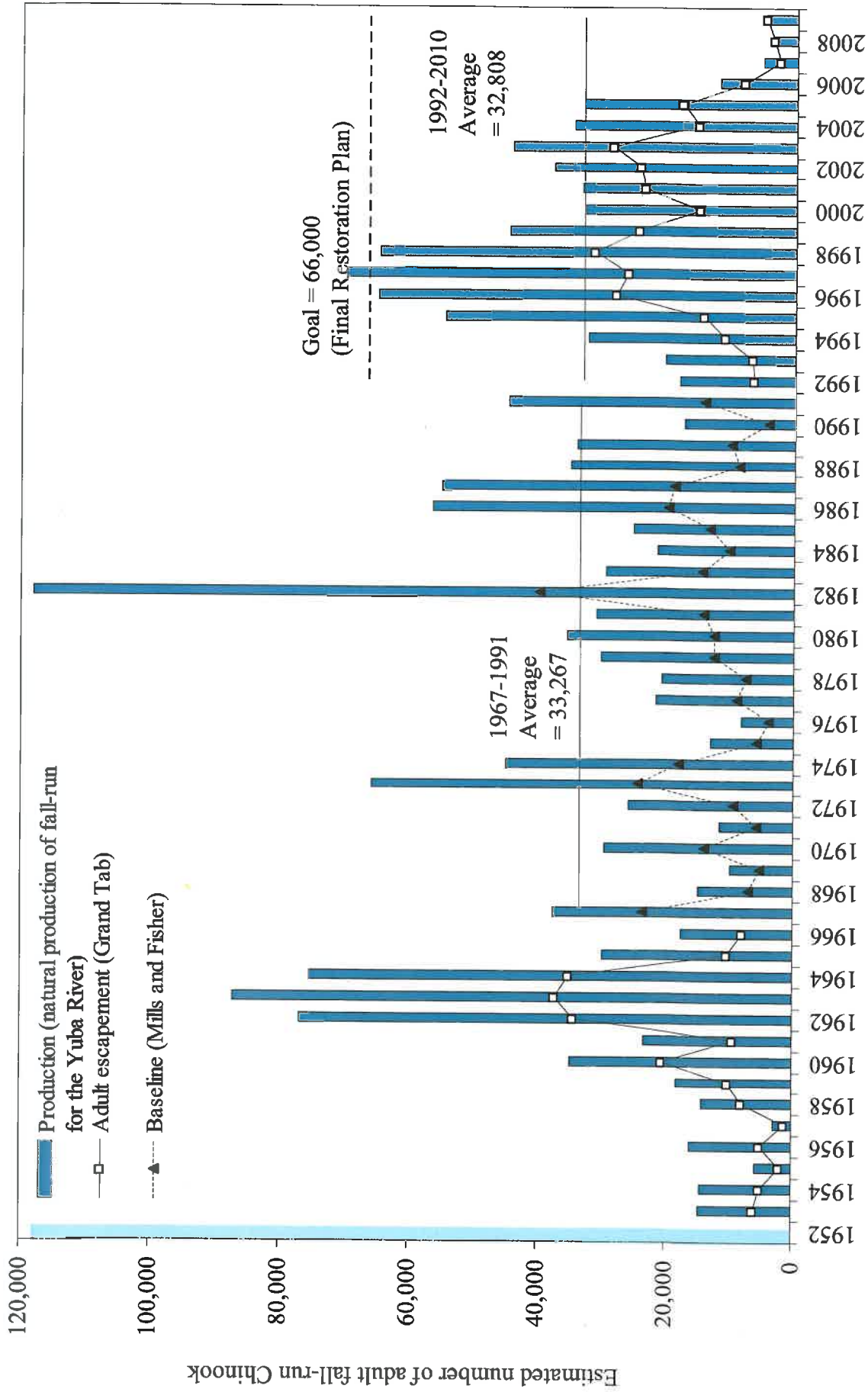


Figure 26. Estimated yearly natural production and in river escapement of Yuba River adult fall-run Chinook salmon. 1967-1991 baseline numbers are from Mills and Fisher (CDFG, 1994). 1952 - 1966 and 1992-2010 numbers are from CDFG Grand Tab (February 2, 2011). □ = data was not available for 1952.

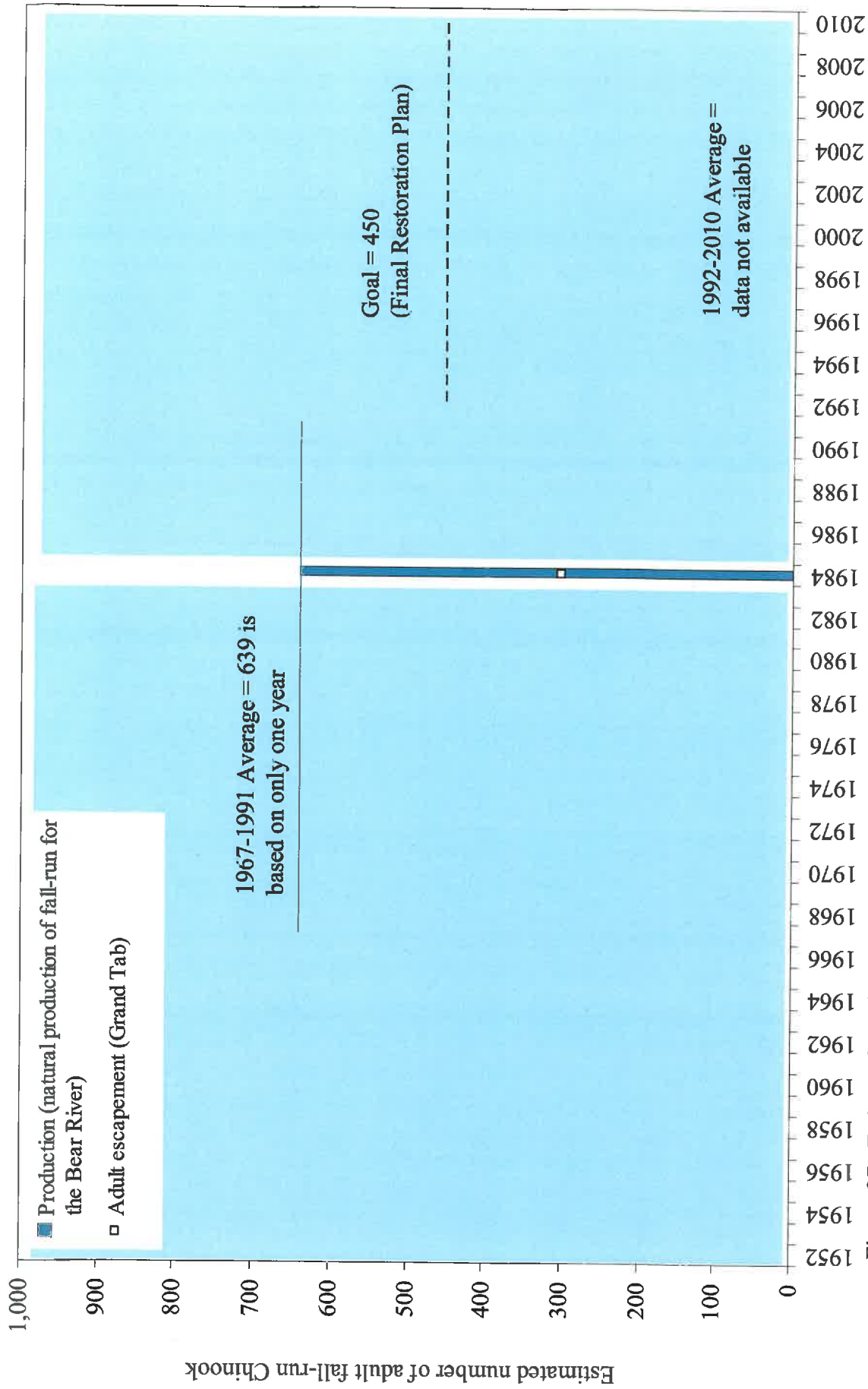


Figure 27. Estimated yearly natural production and in river escapement of Bear River adult fall-run Chinook salmon. = data was not available for 1952 - 1983, and 1985 - 2010. Numbers are from CDFG Grand Tab (February 2, 2011).

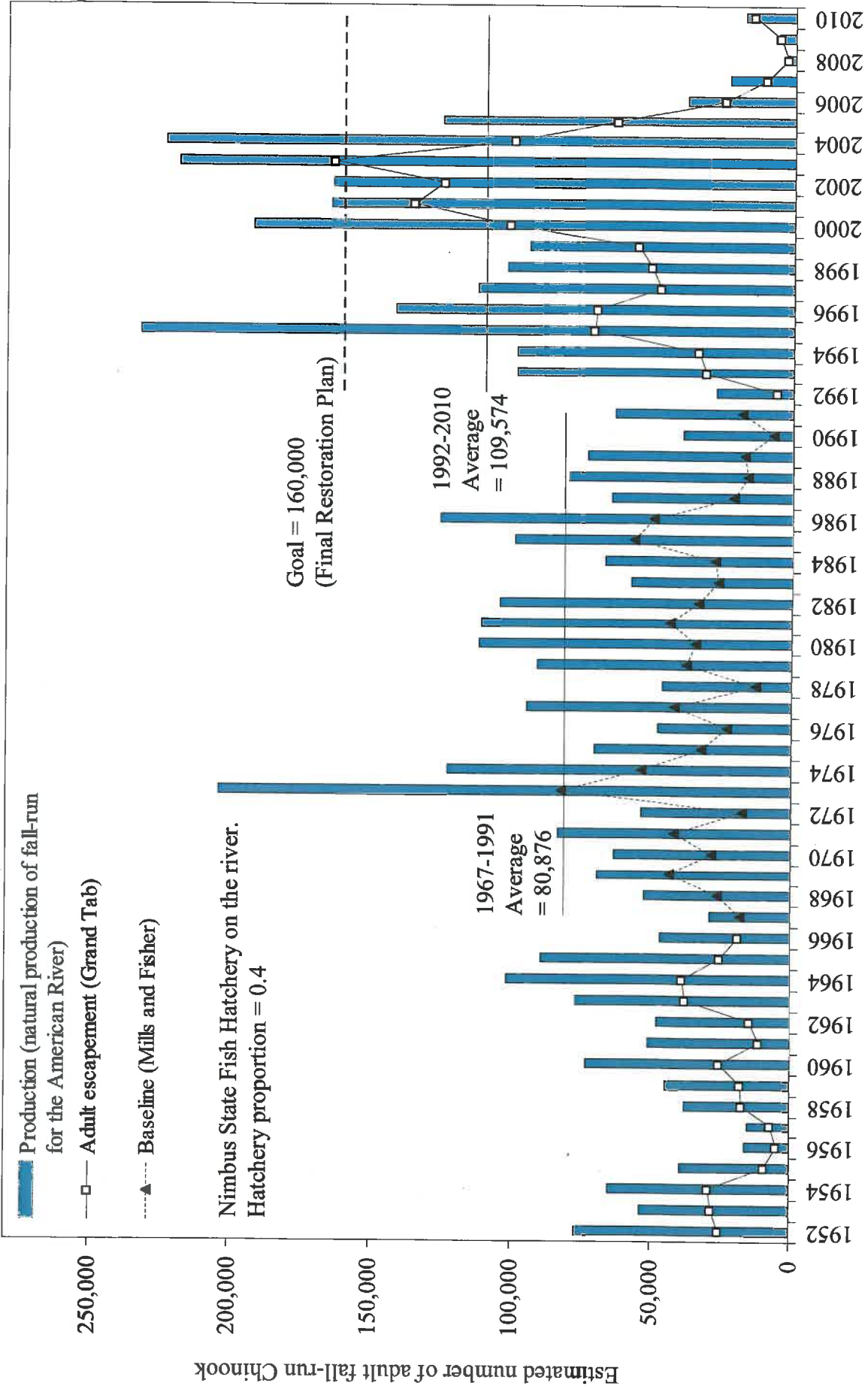


Figure 28. Estimated yearly natural production and in river escapement of American River adult fall-run Chinook salmon. 1952 - 1966, and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).



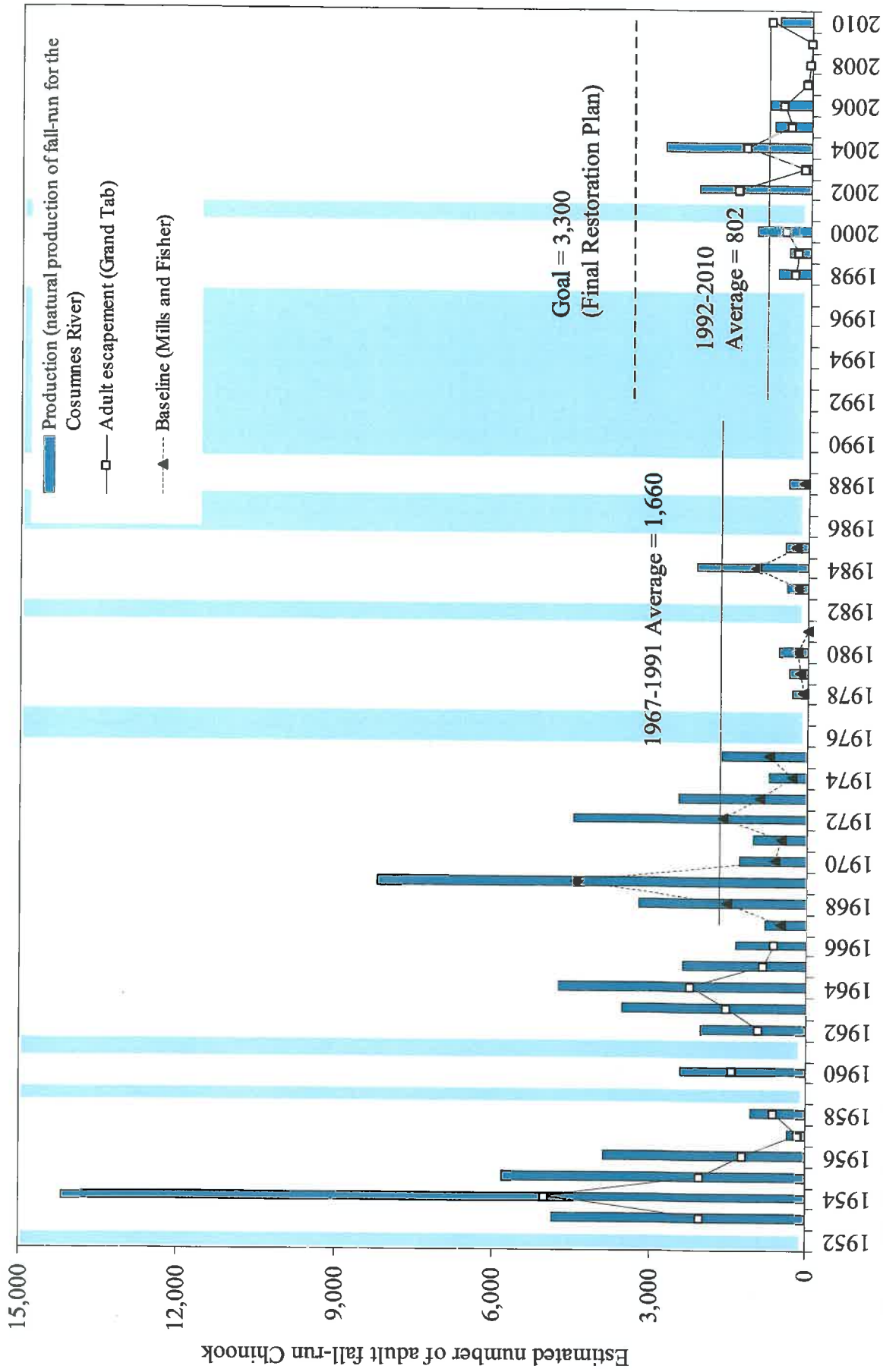


Figure 29. Estimated yearly natural production and in river escapement of Cosumnes River adult fall-run Chinook salmon.

□ = data was not available for 1952, 1959, 1961, 1976-1977, 1982, 1986, 1987, 1989 - 1997, and 2001.

1952-1966 and 1992-2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

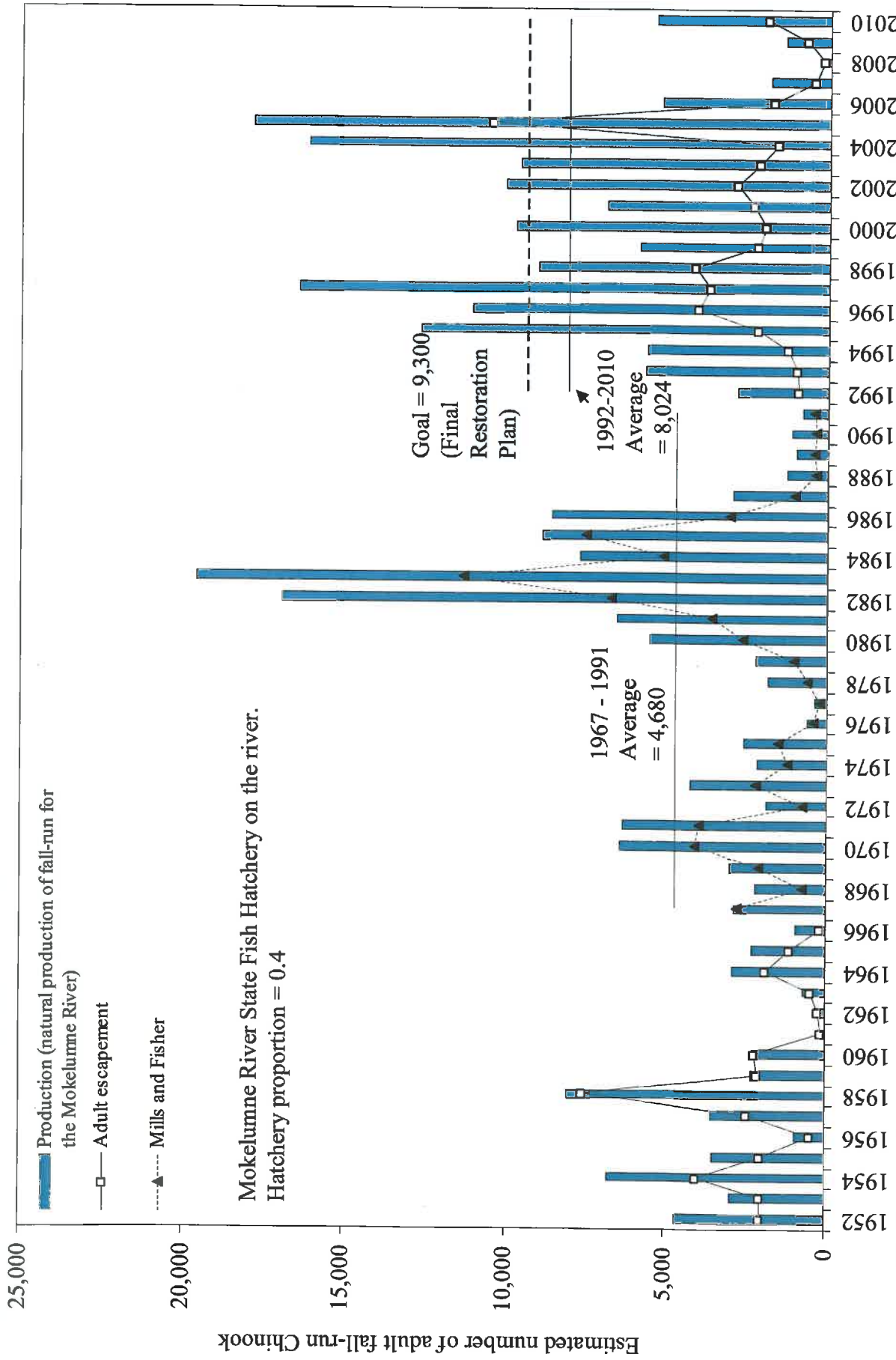


Figure 30. Estimated yearly natural production and in river escapement of Mokelumne River adult fall-run Chinook salmon. In river escapement numbers were not available for 2001. 1952 - 1966 and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

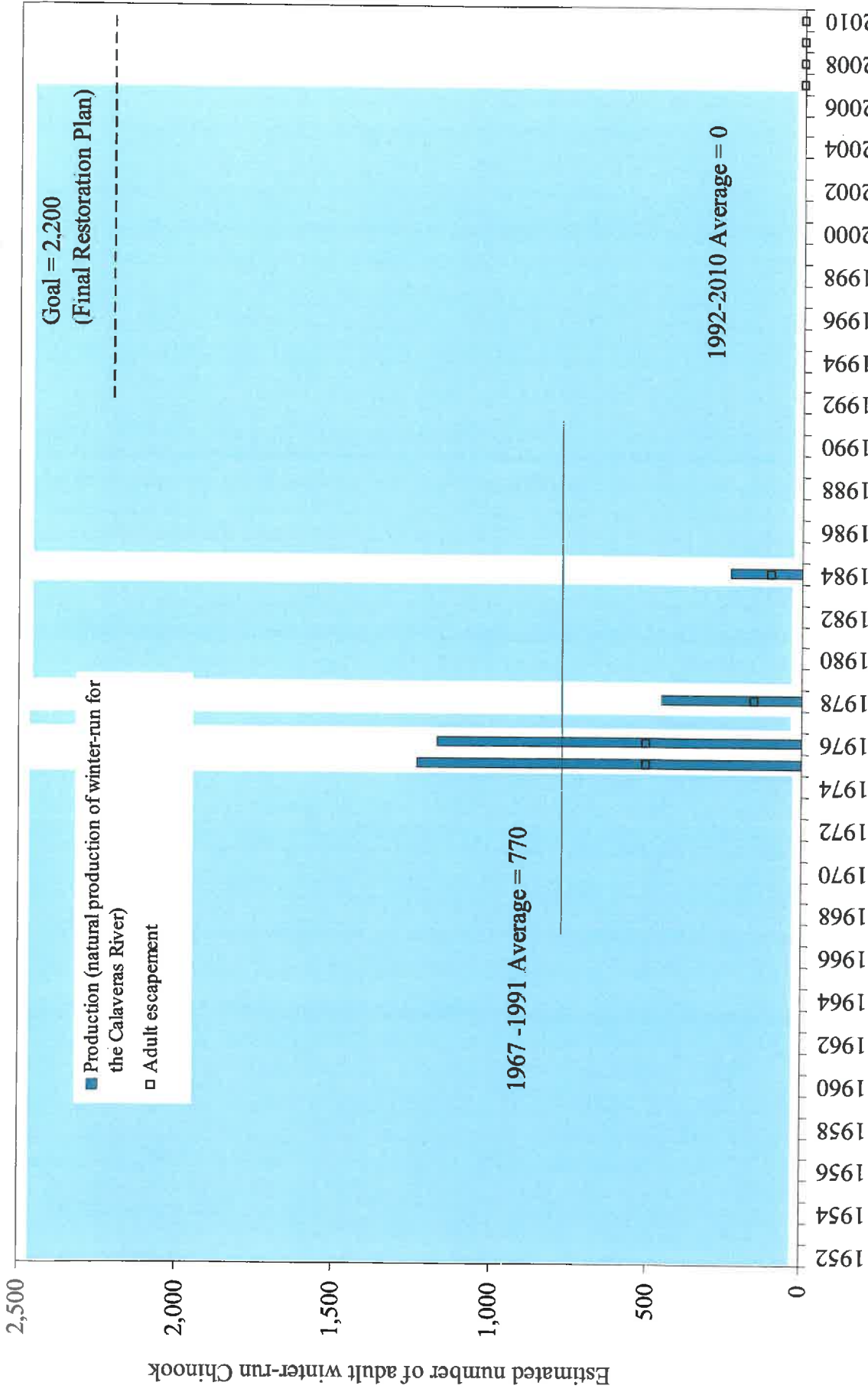


Figure 31. Estimated yearly natural production of Calaveras River adult winter-run Chinook salmon. [ ] = data was not available for 1952 - 1974, 1977, 1979 - 1983, and 1985 - 2006. 1952 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers from Mills and Fisher (CDFG, 1994) were not available.

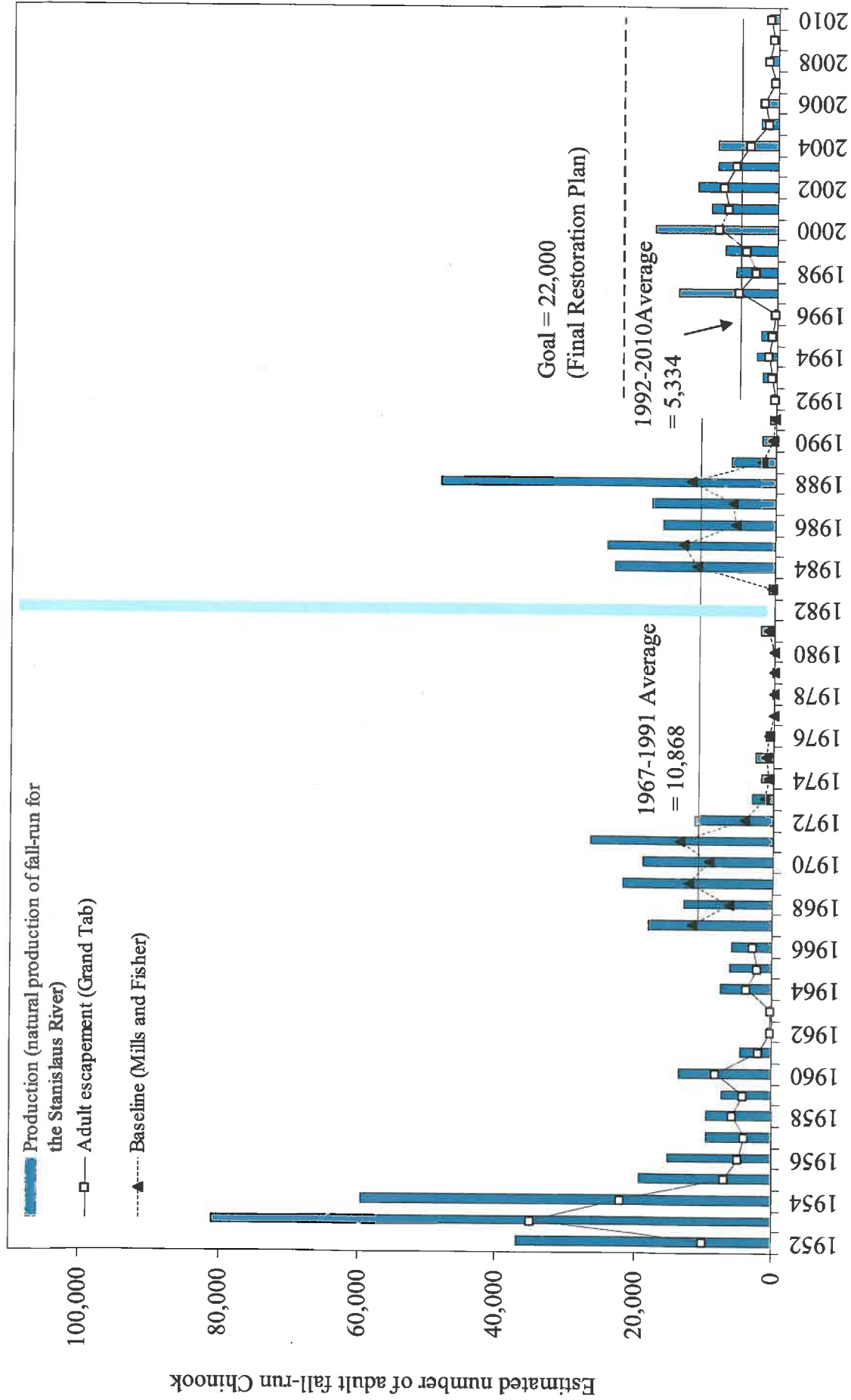


Figure 32. Estimated yearly natural production and in river escapement of Stanislaus River adult fall-run Chinook salmon. 1952 - 1966 and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994). □ = data was not available for 1982.

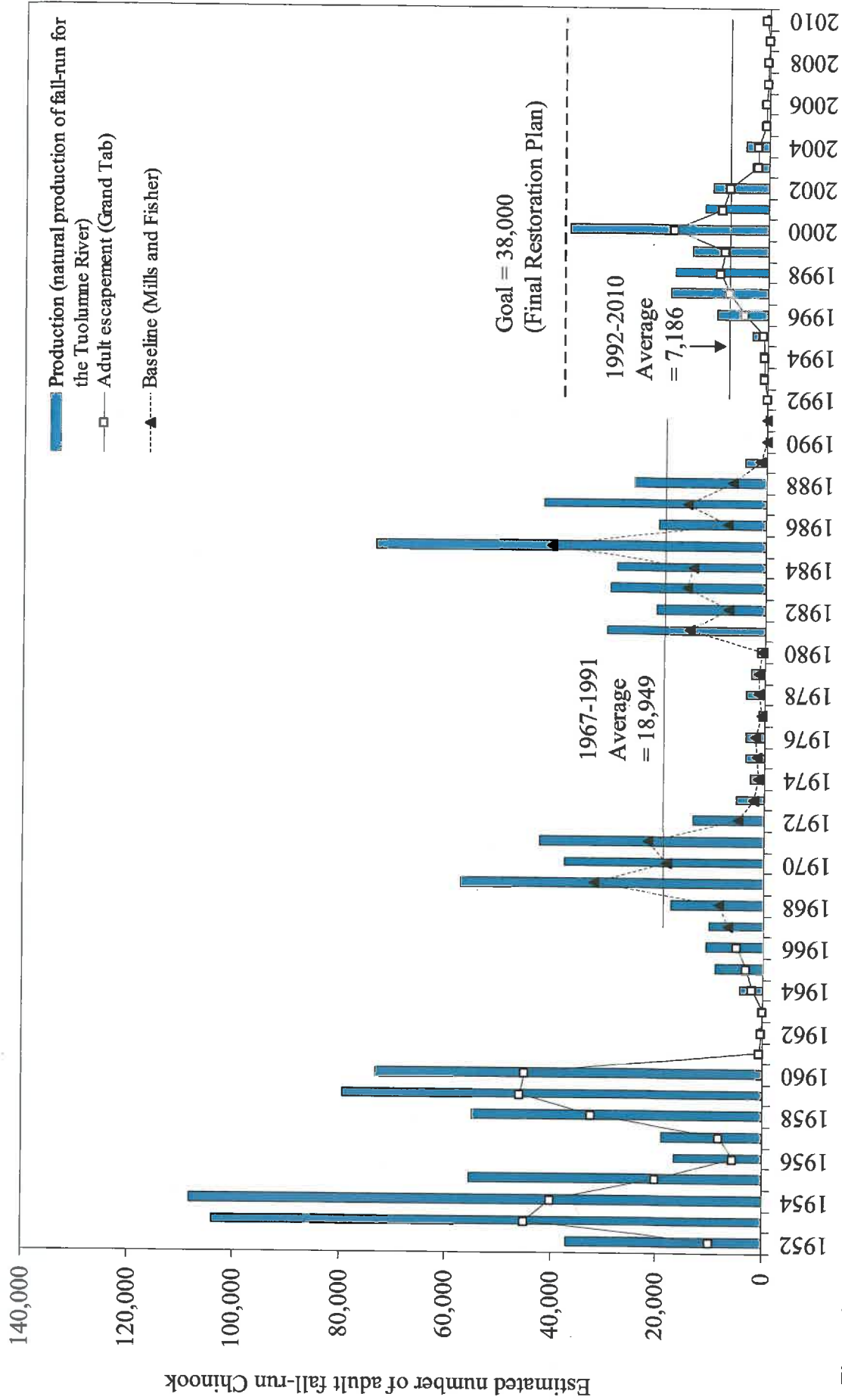


Figure 33. Estimated yearly natural production and in river escapement of Tuolumne River adult fall-run Chinook salmon. 1952 - 1966, and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

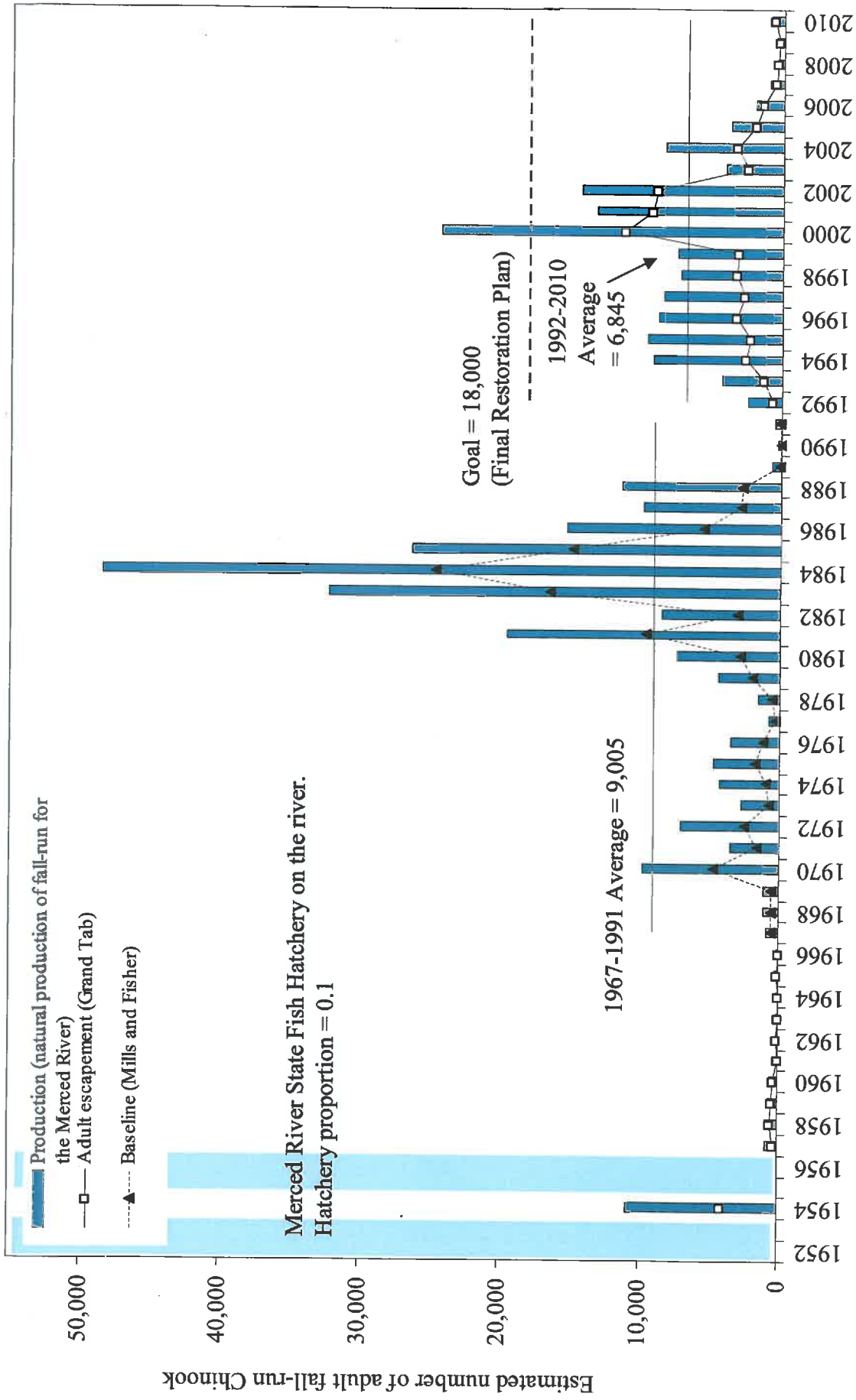


Figure 34. Estimated yearly natural production and in river escapement of Merced River adult fall-run Chinook salmon. 1952 - 1966, and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). □ = data was not available for 1952 - 1953, and 1955 - 1956. Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

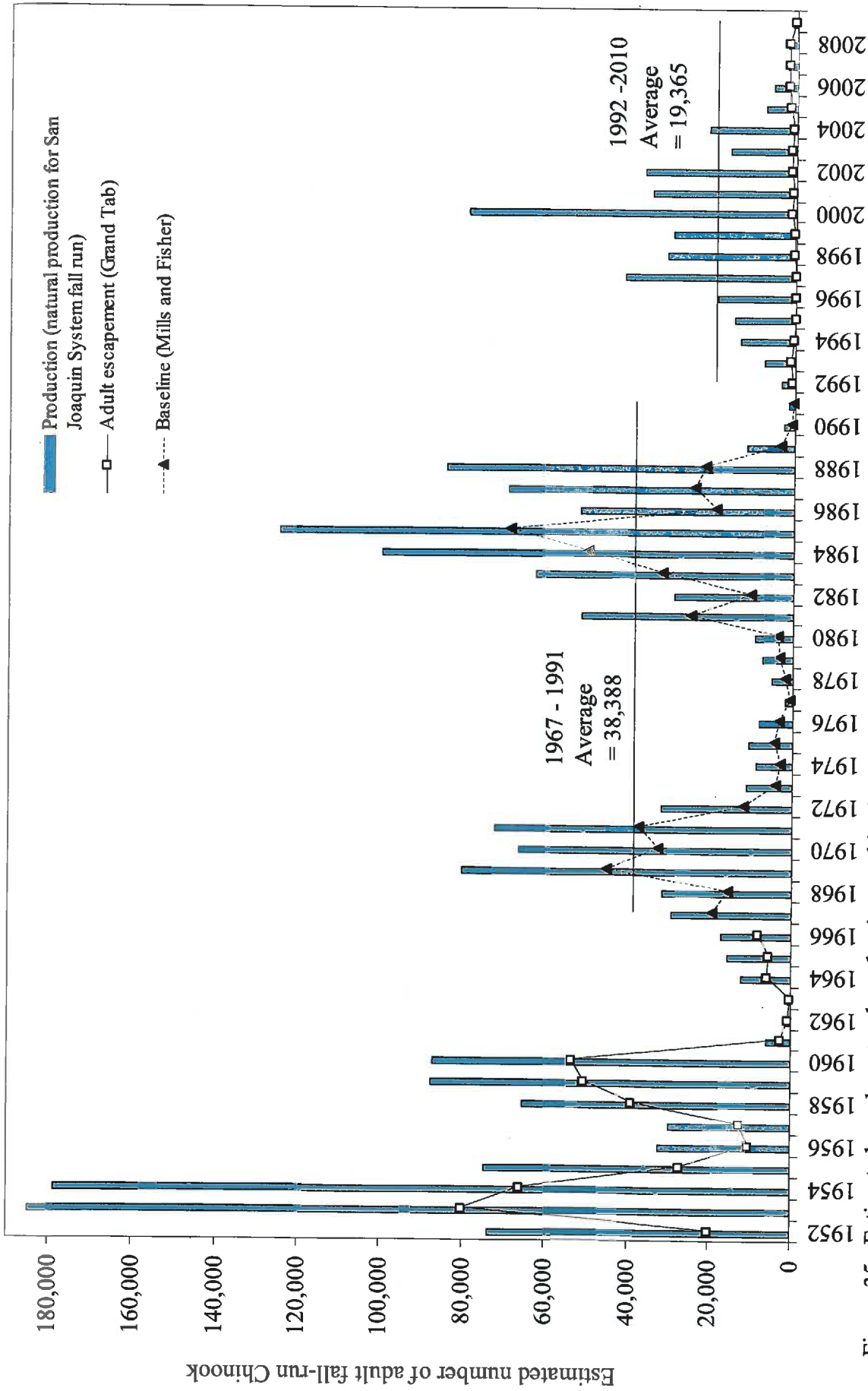


Figure 35. Estimated yearly natural production, and in river escapements of San Joaquin System adult fall-run Chinook salmon. The San Joaquin System is the sum of the Stanislaus, Tuolumne, and Merced Rivers. 1952 - 1966, and 1992 - 2010 numbers are from CDFG Grand Tab (February 2, 2011). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

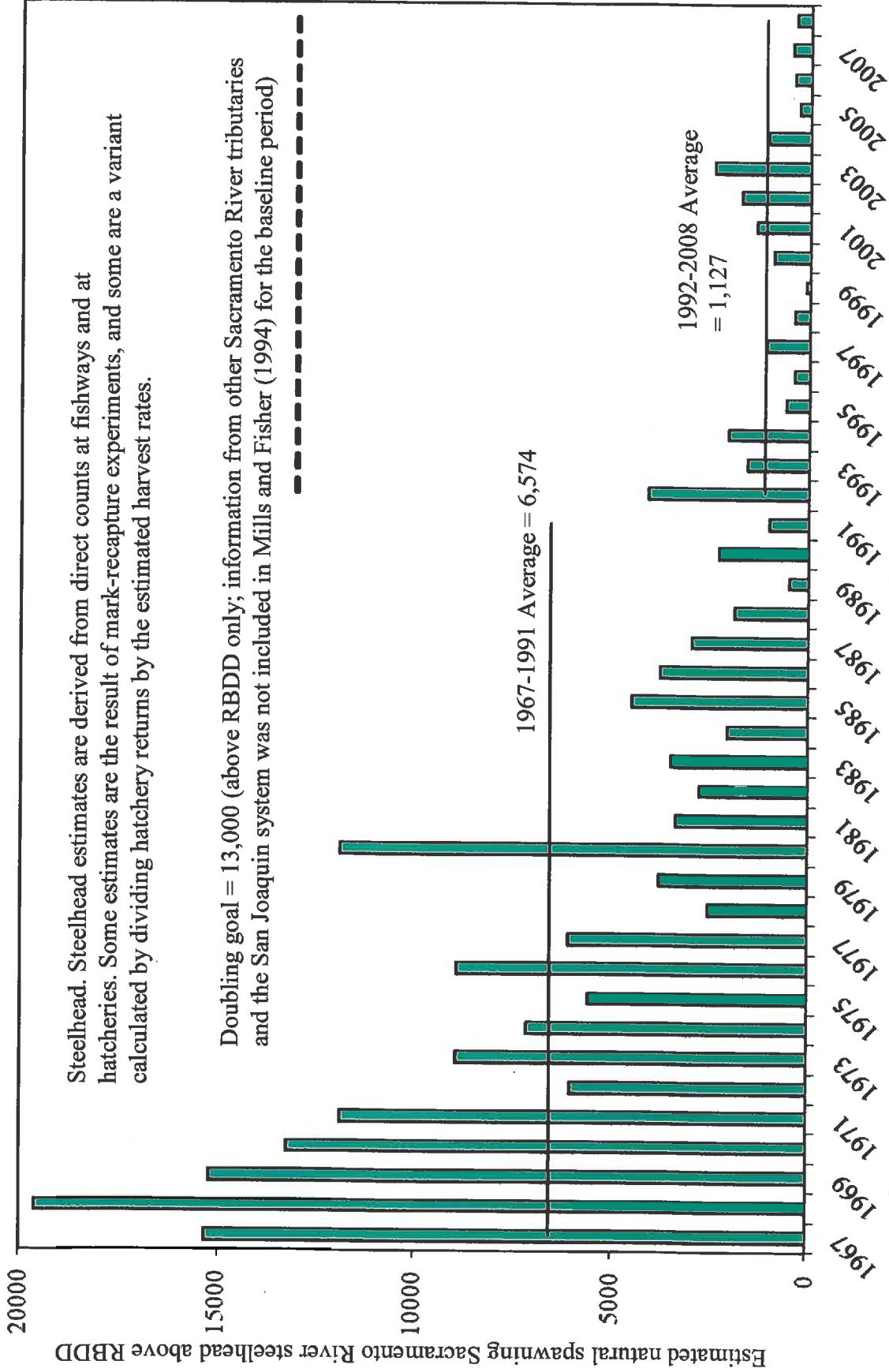


Figure 36. Estimated yearly number of natural spawning of steelhead on the Sacramento River, upstream of the RBDD (Mills and Fisher, 1994). Data for 1992-2008 is from CDFG, Red Bluff. 2008 sampling was curtailed in June due to high water temperatures.



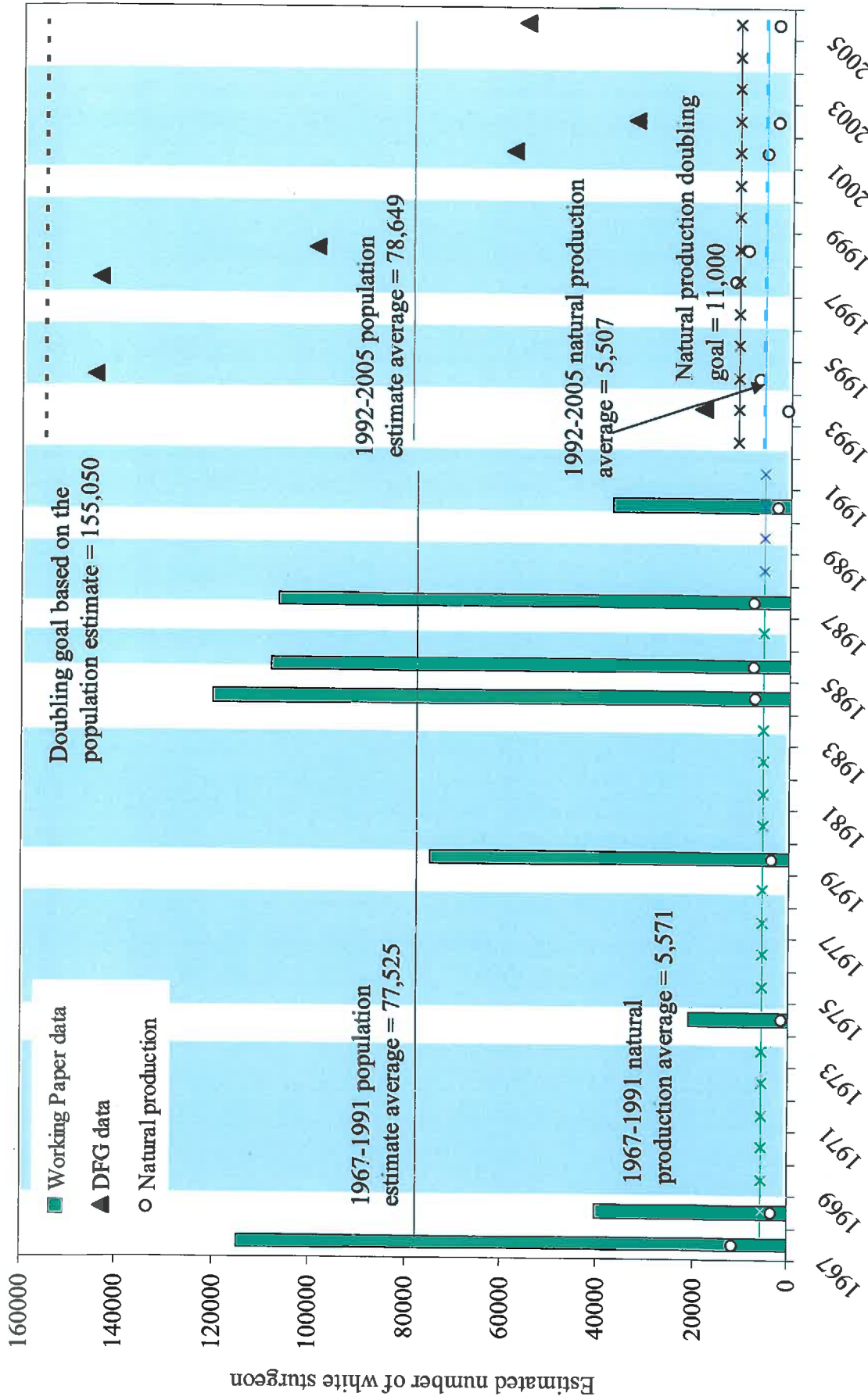


Figure 37. Yearly population estimates and natural production estimates of white sturgeon in the Central Valley. Population estimates are for >= 40 inch fish, while natural production estimates are based on age 15 fish. 1967-1991 baseline numbers are from the Working Papers on Restoration Needs, Vol. 3 (1995), and 1992-2001 numbers are from CDFG, Bay Delta. [shaded area] = data was not available for 1991-1992, 1995-1996, 1999-2000, and 2003-2004.

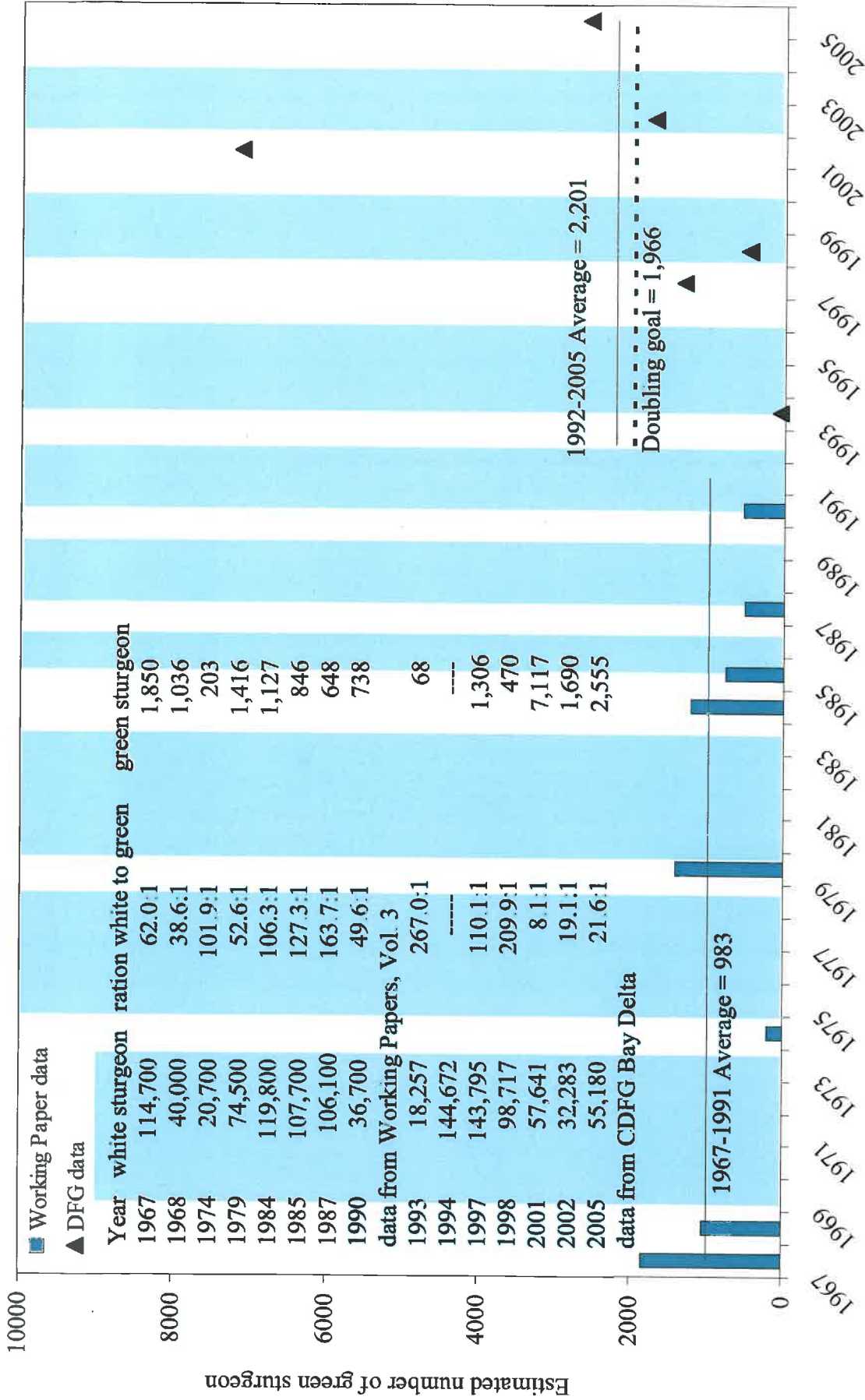


Figure 38. Yearly estimated abundance of green sturgeon in the Central Valley. 1967-1991 baseline numbers are from the Working Paper on Restoration Needs, Vol. 3 (1995), and 1992-2005 numbers are from CDFG, Bay Delta. □ = data was not available for 1969-1973, 1975-1978, 1980-1983, 1986, 1988-1989, 1991-1992, 1994-1996, 1999-2000, and 2004-2005. Green sturgeon estimates were based on a ratio of white to green sturgeon captured during those years when DFG was sampling for these fish.

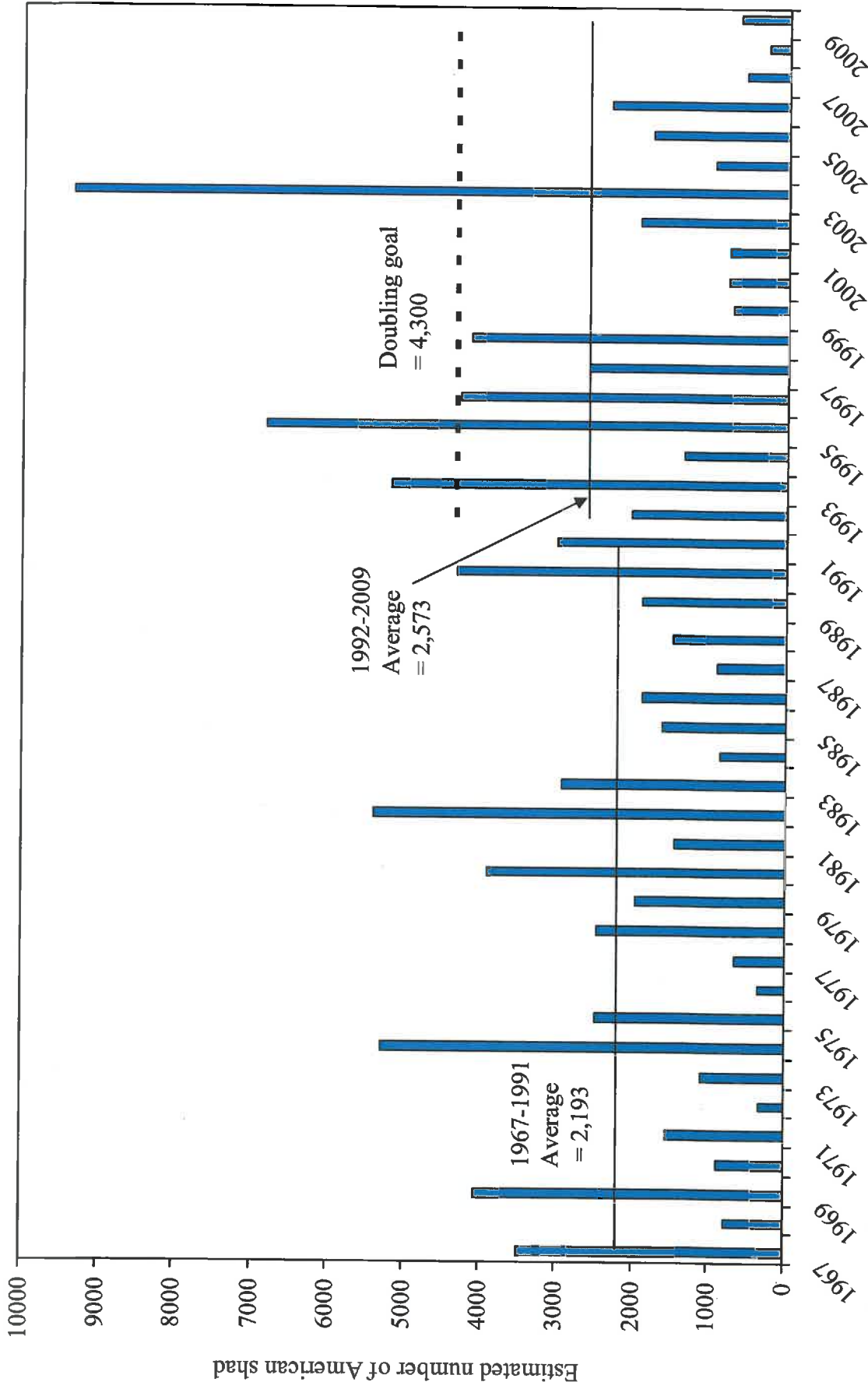


Figure 39. Yearly estimated abundance of American shad in the Central Valley, 1967 through 2005. Data, based on juvenile abundance from CDFG, Central Valley Bay Delta Branch (CVBDB) fall midwater trawl, was used as an index of production. 1967 – 1988 data is from the Working Papers, Vol.3, and 1989 – 2009 data is the from CDFG, CVBDB midwater trawl website. The Working Papers and CVBDB site a young-of-year index .

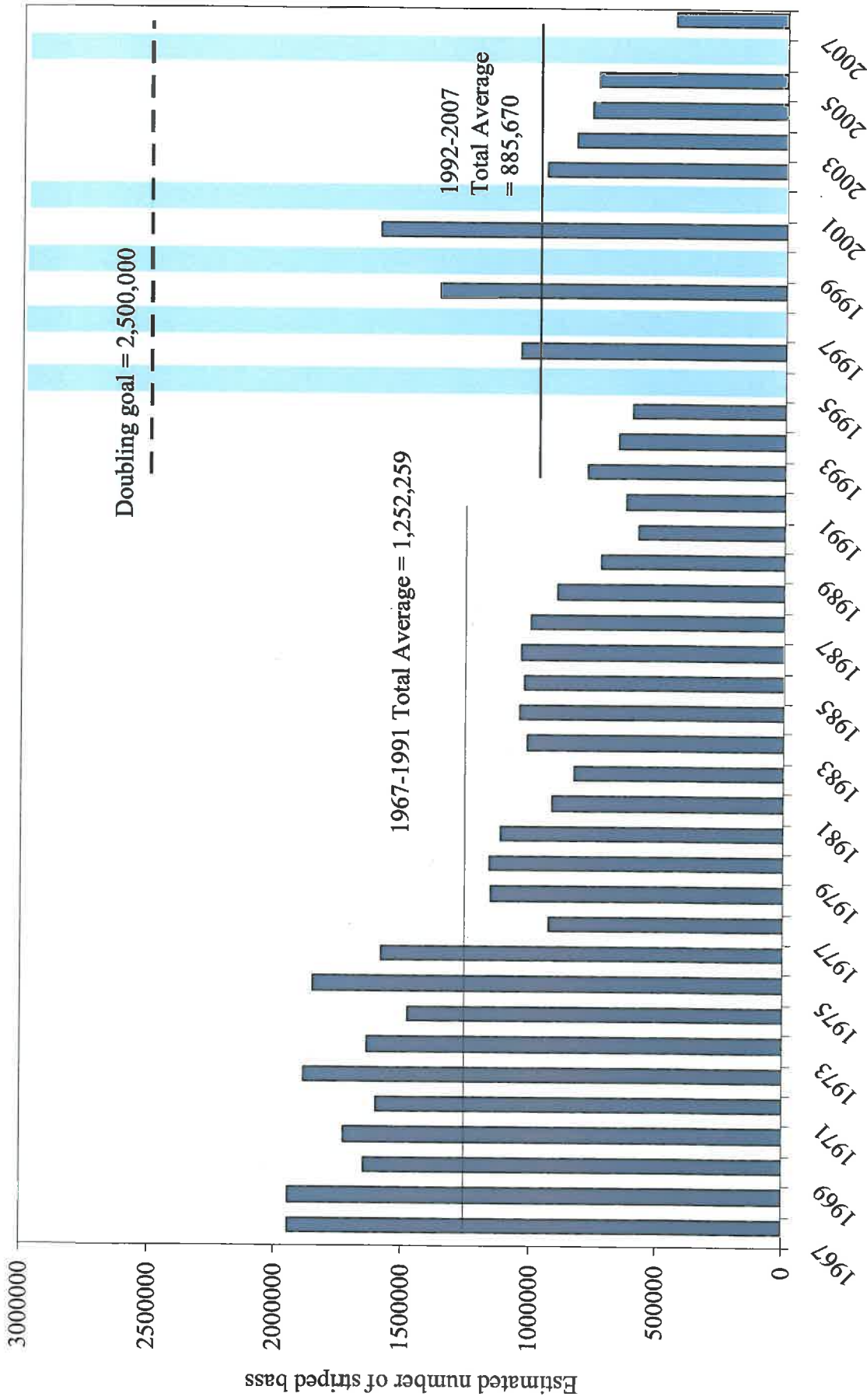


Figure 40. Yearly estimated abundance of adult sized (> 15 inches before 1982, and > 16.5 inches thereafter) striped bass in the Central Valley. Data is from the Mills and Fisher (1967-1991), and CDFG, Bay Delta (1992-2007). □ = data was not available for 1995, 1997, 1999, 2001, and 2006.

## Central Delta Water Agency

### **Response**

#### **G\_CDWA1-01**

The comment introduces the primary theme of the letter and specific comments are responded to as they are provided.

#### **G\_CDWA1-02**

The comment asserts that there is no correlation between floodplain habitat availability in the Delta and declining fish populations. The comment notes that anadromous fish populations have declined since the 1960s, most dramatically since 2004, and that the connection between increased floodplain habitat and salmon populations is unclear. By definition, floodplains are seasonally inundated under specific flow conditions. The flooded Delta islands referenced in the comment (Franks Tract, Mildred Island, and Liberty Island) are not floodplains and are considered shallow-water habitat. These flooded islands are always under water to depths that depend on streamflow and tide. Because they are always flooded, these areas become excellent habitat for extensive stands of invasive aquatic plants (e.g., Brazilian waterweed (*Eragaria densa*)) and areas that are more conducive to rearing nonnative species (e.g., bass) than salmonids (Grimaldo and Hymanson 1999; Grimaldo et al. 2000). Creating new flooded islands is not part of the CVFPP.

DWR agrees that there has been a decline in salmon abundance since the 1960s. The comment notes that predation, stranding, and increased water temperatures remain major risks to anadromous salmonids. These are important issues that may create challenging conditions; however, they are only a partial list of risks facing fish. As noted in Section 3.5, “Biological Resources—Aquatic,” of the DPEIR, other conditions that contribute to the overall quality of the Delta are created by CVP and SWP operations; invasive species (especially predators); water quality changes; and habitat loss. Ocean rearing conditions for salmonids are also critically important to the number of fish that survive to return as adults (Moyle 2002; Hare et al. 1999).

The focus of this comment, however, is the uncertain result of increasing floodplain habitat on salmon populations. Populations of salmon fluctuate in response to a complex set of variables affecting survival at all life stages (e.g., water temperatures, streamflow, instream habitat conditions, ocean rearing conditions, available prey, predation). Actions that increase survival of individual fish can only benefit the population as a whole. However, ascertaining the magnitude of a specific connection between a single action

such as floodplain reconnection, especially at the project level, and abundance of adult fish is likely not possible given the multitude of factors that affect populations. The influence of floodplain habitats on salmon growth and production are discussed in responses to comments G\_CDWA1-06 through G\_CDWA1-08.

It is also important to remember that this is a program-level EIR that evaluates the CVFPP as a broad planning document, not at a level that includes specific projects. Chapter 1.0, "Introduction," of the DPEIR acknowledges that project-specific impacts would need to be addressed as individual projects are proposed.

This comment does not result in new significant environmental impacts or a substantial increase in the severity of an environmental impact, nor does it suggest a feasible project alternative or mitigation measure that would clearly reduce environmental impacts. Therefore, no changes to the DPEIR are required.

#### **G\_CDWA1-03**

The comment focuses on the changes in tidal prism that could occur when large islands in the Delta are flooded. Predation on sensitive species of fish by other fish is an issue in the Delta. The NTMAs and LTMAAs proposed in the DPEIR are directed at floodplain preservation and restoration, not the flooding of Delta islands; flooding of additional islands in the Delta is not part of the CVFPP. As the comment notes, flooding islands for salmonid habitat may not achieve the results desired. This is because many of these islands are many feet below sea level as a result of soil loss from decades of agriculture. Without rebuilding the soil to a level that would create true floodplain (generally an unfeasible alternative simply because of the costs involved), island flooding is not part of the proposed program. Setback levees may be proposed in specific locations on Delta islands, but only in situations where the resultant floodplain is truly floodplain and not permanent open-water habitat. The purpose of the CVFPP is to improve flood management. Compliance with the ESA will be required for specific actions associated with the CVFPP. This comment is directed at a feature of the Delta that is not part of the proposed program and that would not change as a result of the program. Therefore, no changes to the DPEIR are required.

#### **G\_CDWA1-04**

The comment asserts that floodplain habitat is being substituted for flow. The comment correctly indicates that floodplain habitat proposed for restoration within the CVFPP would be inundated at high flows for a limited period of time. The comment also suggests that rearing of

salmonids on floodplain may not accurately reflect actual floodplain rearing conditions based on a report by Jeff Opperman (Final Report for Fellowship R/SF-4) attached to the comment. Two points are important to this comment:

1. Temporarily activated floodplains, such as those created at a setback levee, are vastly different in terms of productivity for fish than floodplain habitat inundated for a long period of time, like the Yolo Bypass. Long-term rearing habitat on short-duration floodplains may be limited, but these areas can provide other resources important to fish such as terrestrial invertebrate drift prey; large woody material; nutrients; and shallow-water, low-velocity refuge habitat. Perhaps the final one, the low-velocity habitat, is most important to migrating juvenile fish during floods because it allows them to take refuge from fast water velocities and remain in the river instead of getting swept into undesirable locations.
2. Although the source supplied with the comment (Jeff Opperman, Final Report for Fellowship R/SF-4) is interesting and the differences in fish size are dramatic, the source information does not contradict what is known about floodplain rearing of juvenile salmon. The Opperman paper was a report of work done in support of a thesis being conducted by Carson Jeffres; that work has since been published (see Jeffres et al. 2008) and includes a more detailed discussion of the methods, but the overall results are essentially the same as presented by Opperman. Neither of these publications was cited in the DPEIR. In the paper by Sommer et al. (2005), the authors note that fish spread through the Yolo Bypass floodplain shortly after it was activated and reared there for extended periods of time. This resulted in substantially larger fish at the downstream end of the Yolo Bypass. Section 3.5, “Biological Resources—Aquatic,” of the DPEIR notes that fish rearing on floodplains have been found to grow more than 1 mm per day. Regardless of this, the DPEIR does not suggest that floodplains replace streamflow as is suggested in the comment. For additional discussion of floodplains and fish, see comments G\_CDWA\_06 through G\_CDWA\_08.

The DPEIR recognizes the potential effect of floodplains created by setback levees (Impact BIO-A-6 (NTMA) in Section 3.5) and the habitat created by new bypasses or bypasses where inlet weir elevations are changed (Impact BIO-A-7 (LTMA)). Therefore, no changes to the DPEIR are required.

**G\_CDWA1-05**

This comment refers to the results reported in Jeff Opperman's Final Report for Fellowship R/SF-4 (attached to the comment letter). The comment presents some reservations about the results of the studies associated with this report where fish were reared, in cages, in the mainstem Cosumnes River and on the floodplain. Mainstem locations were exposed to higher water velocity than the floodplain locations. The floodplain fish were much larger at the end of the study than the mainstem river fish.

The comment indicates that although stranding is discussed in the DPEIR, the analysis downplayed the possible impact. In a detailed multiyear study on the Cosumnes River, Moyle et al. (2007) found that stranding, while it occurred in every year, was an issue primarily for nonnative fish, which used the floodplain and floodplain ponds later in the season than native species. Sacramento splittail and Chinook salmon were stranded annually during the study, but in smaller numbers than nonnative species. Section 3.5, "Biological Resources—Aquatic," of the DPEIR discusses stranding at the level of detail that is appropriate for a program-level document. Mitigation for this impact includes measures to require that any reconnected floodplains be designed in such a way that stranding risks are minimized (Mitigation Measure BIO-A-6 (NTMA)).

The comment asserts that downstream displacement into cooler, more productive parts of the estuary during periods of high flows may not be detrimental, but provides no support for this statement. Periods of high flow on the Sacramento and San Joaquin rivers generally occur during winter rainstorms and spring snowmelt when water temperatures are not of concern. Regardless of the temperature issue, displacement downstream can be detrimental if fish are exposed to higher rates of predation, forced into unsuitable rearing habitat, or exposed to unsuitable water quality (e.g., high salinities before acclimation). Displacement of fish by high flows is not discussed in the DPEIR, but is a function of natural precipitation levels and water project operations, neither of which is an element of the CVFPP.

The commenter does not provide any new information or references offering facts, reasonable assumptions based on facts, or expert opinion supported by facts to support the comment that the proposed program would result in new significant environmental impacts or a substantial increase in the severity of an environmental impact. Therefore, no changes to the DPEIR are required.



***G\_CDWA1-06, G\_CDWA1-07, and G\_CDWA1-08***

These three comments assert that floodplain habitat in the absence of high flows does not result in increase in ocean survival of Chinook salmon (presumably returning adults). The comments request that the correlation between floodplain habitat in the Delta and fish numbers be discussed in the DPEIR, if such a relationship exists. Two papers were supplied as support for these comments (see Sommer et al. 2001 and Sommer et al. 2005).

As mentioned previously, salmon populations respond to a complex array of forces that act on all stages of their life cycles. Some of the larger factors acting on salmon life cycles (e.g., ocean rearing conditions or size at outmigration) can be correlated to changes in survival to adulthood, but only through massive tagging and recapture efforts with coded wire tags over many years. The papers by Sommer et al. (2001, 2005) provided in the comment support the concept that floodplains are important, but are cautious about drawing specific conclusions regarding the magnitude of this importance.

The complexity and differences between floodplains is illustrated in work conducted by Freyrer et al. (2006), which showed distinctly different fish communities in the Yolo Bypass than in the Sutter Bypass in the same years and suggested that fish communities are determined by the floodplain habitat. Work in other rivers that compared constructed floodplains to natural floodplains found that they support essentially the same number of fish, but that fish size was a function of cover and shoreline complexity (Roni et al. 2006). Modeling and analysis of increased production at the lower trophic levels on floodplain habitats supports their importance for rearing fish (Sommer et al. 2004). These papers and the others cited in Section 3.5, “Biological Resources—Aquatic,” of the DPEIR also illustrate that floodplain habitat is important for the production of native fish other than salmon (e.g., Sacramento splittail).

All of this illustrates the level of complexity in how floodplains interact with fish populations. This makes developing a valid correlation between a specific element (such as available floodplain habitat) and overall salmon survival, as requested in the comment, a challenging technical task that is beyond the scope of the DPEIR, and unnecessary to programmatically evaluate the effects of the proposed program on sensitive fish species.

Section 3.5 of the DPEIR presents a broad discussion of the program’s impacts on special-status fish (Impact BIO-A-6 (NTMA)) that describes beneficial and adverse effects of floodplain habitat on native fish. The comment provides one source not included in this discussion (Sommer et al. 2005), but evaluating this document does not alter the conclusions in the

DPEIR. Therefore, the comment does not result in new significant environmental impacts or a substantial increase in the severity of an environmental impact, nor does it create a feasible project alternative or mitigation measure that would clearly lessen environmental impacts. Therefore, no changes to the DPEIR are required.

**G\_CDWA1-09**

The comment questions the value of SRA habitat and its value to fish, especially because the BDCP (Chapter 8, according to the comment) posits a need to control predators by removing structures that alter flow fields and create shade. The comment requests that the DPEIR evaluate the impact of SRA on sensitive fish species. This is interpreted here to mean that because SRA creates shade and instream structures, SRA has an adverse effect on fish.

Section 3.5, “Biological Resources—Aquatic,” of the DPEIR defines SRA as follows:

...the nearshore aquatic area at the interface between the river and adjacent riparian habitat. Such habitat has two principal attributes: an adjacent bank composed of natural, eroding substrates that support riparian vegetation that either overhangs or protrudes into the water; and water that contains variable amounts of instream woody material (IWM) such as leaves, logs, branches, roots, and detritus and has variable velocities, depths, and flows.

Additionally, as noted in the DPEIR, the USFWS Mitigation Policy considers SRA to be a Resource Category 1, for which no loss of existing value is allowed (46 FR 7644). Category 1 habitats are those with high value for evaluation species—in this case, sensitive species of fish. Further, as stated in DPEIR Section 3.5, SRA is an element of critical habitat and essential fish habitat for salmonids.

Presumably the reference to BDCP Chapter 8 in this comment is in reference to the predator control measures, which discuss removing overhanging or in-water elements (BDCP 2012:Chapter 8, CM15, pages 8-45–8-47). Of equal interest to this comment are the BDCP measures that include the active and passive restoration of riparian forests at the edges of the channel (BDCP 2012:Chapter 8, CM7, pages 8-33–8-35). Although these measures do not use the term “SRA,” the description of the habitat matches the SRA definition presented in the DPEIR. The difference between structures discussed in the BDCP and SRA as discussed in the DPEIR is that the BDCP structures are artificial, abandoned, and/or no longer functional. In contrast, SRA is a naturally occurring or restored habitat area that provides important resources to the ecosystem. Although

SRA does include or contribute to the formation of in-water elements such as large wood and provides shade, these are naturally occurring features and therefore are accepted as part of the system, or designed to minimize habitat for predators. SRA is considered an important resource for fish because it helps regulate water temperature, provides terrestrial invertebrate prey, provides large woody material, filters runoff from upland locations, stabilizes banks limiting erosion, and reduces water velocities of floodflows.

The existence of SRA within the study area is an existing condition, and because it is a Category 1 resource, it is considered a sensitive resource. The DPEIR is required to evaluate the effects that the proposed program could have on this sensitive resource. The DPEIR conducts this analysis in Impact BIO-A-2 (NTMA) in Section 3.5, “Biological Resources—Aquatic.” The discussion examines the loss of SRA caused by the VMS, determining that the impact to SRA from the VMS would be potentially significant and applying mitigation measures. (See Mitigation Measures BIO-A-2a (NTMA) and BIO-A-2b (NTMA) in Section 3.5.) The entire impact discussion focuses on the changes to riparian habitat, and therefore on effects on sensitive fish species. The commenter does not provide any new information or references offering facts, reasonable assumptions based on facts, or expert opinion supported by facts to support the comment. Therefore, no changes to the DPEIR are required.

**G\_CDWA1-10**

This comment requests that citations be provided to support the argument that riprap placement on natural streambanks is an adverse effect. The comment indicates that the interstitial spaces in riprap create habitat for fish and wildlife and their food sources. This may be true to a degree, but a review of the effects of riprap on riverine and riparian systems (Fischenich 2003) indicated that in most cold-water systems, riprap adversely affected fish and fish habitat, but that in warm-water systems, the effects were generally beneficial. This difference was attributed to a general lack of hard substrate in the warm-water systems studied. The Sacramento and San Joaquin rivers are generally considered cold-water systems, but hard substrates may be relatively uncommon in the more alluvial reaches. Overall, the effect of riprap placement on the aquatic ecosystem is highly dependent on the system and site-specific design (Fischenich 2003). The text of the DPEIR has been revised in Chapter 4.0, “Errata,” to include citations related to riprap placement. The inclusion of these edits does not change the analysis or conclusions of the DPEIR.

**G\_CDWA1-11**

The comment asserts that the DPEIR fails to take into account future development that could result if protecting previously undevelopable areas allows additional development to occur. Growth-inducing impacts of the proposed program were thoroughly addressed in DPEIR Chapter 6.0, “Other CEQA-Required Sections and Additional Material.”

**G\_CDWA1-12**

The comment requests that the DPEIR include a more scientific evaluation of sea-level rise and discuss how this will be observed in the Delta. The background and current scientific understanding of sea-level rise is discussed in detail in Section 3.7, “Climate Change and Greenhouse Gas Emissions,” of the DPEIR. As discussed in Section 3.7, among the major concerns are saltwater intrusion and inundation of low-lying populated areas throughout the Delta that could result in population displacement. The sources and projections of sea-level rise used in the DPEIR are those recommended by the Ocean Protection Council (DPEIR Section 3.7). Although a detailed analysis of potential sea-level-rise scenarios in the Delta may be an interesting exercise from the commenter’s perspective, the discussion in the DPEIR focuses on the connection between sea-level rise generated by increased emissions of GHGs, which increase global warming and therefore sea-level rise. Tidal exchanges between the Golden Gate and inland areas of the Delta are relatively well known. How these could change as a result of sea-level rise is unclear and generally not specifically modeled in analysis of future conditions (for example, see Cloern et al. 2011). The analysis requested by the commenter would be speculative, and no changes to the DPEIR have been made as a result of this comment.

**G\_CDWA1-13**

The comment indicates that the DPEIR needs to more completely address the relationship between levee systems because specific elements may be removed or set back, thus resulting in changing conditions in which wind fetch could generate larger waves and increase seepage in areas intended for protection. Change in fetch distance is possible if new setback levees are created. However, as noted in DPEIR Chapter 1.0, “Introduction,” this is a program-level EIR. As such, Chapter 1.0 acknowledges that project-specific impacts would need to be addressed as those individual projects are proposed. Including a detailed analysis of changes in fetch distance and corresponding differences in wind-generated waves and the effect they could have on levee integrity is not possible at this level of broad plan design. The commenter states an opinion regarding wind waves and changes in seepage rates, but provides no supporting documentation of the concern raised; nor does the commenter provide data or references offering facts, reasonable assumptions based on facts, or expert opinion supported

by facts to support the comment. For this reason, and because of the program-level nature of the DPEIR discussed above, no changes to the DPEIR are required.

***G\_CDWA1-14***

The comment indicates that a complete review of the DPEIR was not accomplished by CDWA and the comments submitted are preliminary. DWR appreciates the comments submitted by CDWA; however, the public comment period on the DPEIR closed on April 20, 2012.

# G\_CFBF1

**Moricz, Nancy**

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**From:** gsack@cfbf.com  
**Sent:** Thursday, February 16, 2012 8:36 PM  
**To:** Cvfppl\_Comments  
**Subject:** Comments on Central Valley Flood Protection Plan

Gary Sack  
North Central Region Field Representative California Farm Bureau Federation  
3148 Shelter Cove Lane  
Elk Grove, CA 95758-4654

February 16, 2012

Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento, CA 95821

Dear Central Valley Flood Protection Board:

G\_CFBF1-01

I am writing regarding the State of California's Draft Central Valley Flood Protection Plan. The local communities and affected landowners have little understanding or knowledge of this Plan.

California's economy is dependent on a viable agricultural industry, particularly the rural areas within the Central Valley. The Valley's rural landowners and businesses are very concerned about the State's ability to plan a resilient flood protection system that is compatible with and supportive of Central Valley agriculture.

G\_CFBF1-02

As an agricultural stakeholder in the Central Valley, I am concerned that, by moving levees and widening bypasses, the Flood Plan proposes to expose to periodic flooding some 40,000 acres of mainly agricultural lands now located behind the levees. A plan that "expands" and puts more habitat in our existing floodways, without rehabilitating the existing system or ensuring proper maintenance in the future, risks sacrificing thousands of acres of existing agricultural lands, without ensuring we will be any better off in the future.

Some types of agriculture can and do coexist in the state's existing bypasses and overflow basins. In contrast, farming on lands that have been historically protected from flooding is frequently incompatible with flooding. Shifting lands from behind levees into the floodplain would disrupt farming operations and businesses currently on those lands.

G\_CFBF1-03

Property rights are at stake. Lands or interests in lands would have to be acquired from willing sellers—if there are no willing sellers, it could be acquired by eminent domain. Condemnation of private lands should be a tool of last resort and should be used only where there is a compelling public purpose.

G\_CFBF1-04

The proposed plan would dislocate people, homes, multi-generational family farming operations, and established businesses. Furthermore there is no clear or adequate transition plan.

G\_CFBF1-05

While representatives from the California Department of Water Resources suggest that more extensive outreach to local agencies, farmers, and landowners will occur in later phases of the Plan, it is a serious concern for Central Valley agricultural stakeholders that the major features of the Plan have been already selected with little or no attempt on the part of the State to involve affected local interests.

Currently, most affected local interests; including farmers and landowners remain uninformed of the State's proposed Plan.

As a Central Valley agricultural stakeholder, I ask the State of California to reach out to local governments, rural communities and farmers to ensure local issues and concerns are understood and addressed.

Sincerely,

Gary Sack  
North Central Region Field Representative California Farm Bureau Federation

**California Farm Bureau Federation, Gary Sack, North Central  
Region Field Representative**

***Response***

***G\_CFBF1-01***

As stated in Master Response 3, the SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises. Implementing the SSIA would increase the percentage of the population receiving at least 100-year (1 percent annual chance) flood protection from the current 21 percent to more than 90 percent (CVFPP, page 3-40). The remaining 10 percent of the population would receive benefits through residual risk management actions. Based on initial planning-level cost estimates developed to evaluate elements of various scenarios considered under the 2012 CVFPP, more than 20 percent of total SSIA investments would support rural-agricultural and small community improvements, and residual risk management. In addition, systemwide elements (which account for almost 40 percent of total SSIA investments) are anticipated to provide flood stage reduction benefits to many of the areas in the system, including small communities and rural-agricultural areas.

In addition, the PEIR prepared for the CVFPP includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) on pages 3.3-34 and 3.3-35 of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed.

***G\_CFBF1-02***

As stated in Master Response 2, the CVFPP is a high-level document that describes the State's vision for a sustainable flood management system in the Central Valley. The SSIA is a responsible and balanced investment approach to achieve this vision. The CVFPP and DPEIR do not permit any specific actions to move forward that would be subject to further evaluation under CEQA. The CVFPP does not provide detailed project descriptions or



funding assurances, nor does it preclude any future actions that could contribute to the State's flood management goals.

The 2012 CVFPP outlines a broad range of potential physical and institutional projects and actions to reduce flood risks. Some actions identified in the SSIA can be implemented within the existing footprint of the SPFC, while others will require new lands and/or easements. Because the SSIA was developed at a conceptual or program level, it does not identify any specific project; therefore, any lands or properties that may be needed to implement the plan are unknown at this time. Initial, preliminary planning-level analyses indicate that actions outlined in the SSIA (expansion of the bypass system; new bypasses; and levee reconstruction, including levee setbacks) could expand flood system lands by as much as 40,000 acres. However, this initial estimate will be refined during follow-on studies and further analysis conducted after adoption of the CVFPP. It is anticipated that land uses within any expansions of the flood management system would be a mix of flood facilities and agricultural and environmental conservation uses; however, the exact amount and geographical distribution of these land uses will require further analyses as future specific projects are considered and evaluated. A portion of the lands and easements needed to implement the SSIA would support improvements to urban levees, but the majority (by surface area) would support floodway expansion and repair and/or reconstruction of levees in rural areas. For preliminary planning purposes, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. However, these preliminary planning estimates will be refined during subsequent project-level analyses. The actual needs for and uses of land will vary depending on the types and locations of specific flood system improvements. For additional details, see Master Response 3.

As stated in Master Response 6, DWR recognizes the importance of proper maintenance to protect State, local, and federal investments in the flood management system. However, maintenance activities alone do not meet current needs or legislative requirements for the CVFPP (e.g., urban level of protection, systemwide approach, and providing multiple benefits).

Improving O&M is a supporting goal of the CVFPP. The SSIA includes elements to address and improve O&M at existing facilities as part of residual risk management. These elements include identifying and repairing after-event erosion, developing and implementing enhanced O&M programs and practices, and forming regional O&M organizations and sustained investments in flood system maintenance (management of the

Sacramento River channel and levees, bank protection, and rehabilitation of flood structures).

The SSIA promotes efficient and sustainable long-term O&M practices through the following:

- Reforming and consolidating State and local agencies' roles and responsibilities for O&M
- Standardizing criteria by which maintenance practices, procedures, and inspections are performed and reported
- Implementing strategies to adequately and reliably fund routine activities and streamline permitting

Some of the proposed activities may involve legislative action, new institutional arrangements involving local maintaining agencies, modifications to existing State programs, and additional or redirected funding.

As stated in Master Response 7, SB 5 sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)).

As stated in Master Response 2, in addition to expansion of the bypass system, levee reconstruction, and other elements, the SSIA includes State investments in agricultural conservation easements, which involves working with willing landowners where easements would be consistent with local land use plans. These easements would be used to preserve agriculture and prevent urban development in current agricultural areas, discouraging conversion to land uses that would increase flood risks within floodplains protected by SPFC facilities. Agricultural conservation easements could be purchased through various DWR programs; an example is DWR's Flood Corridor Program, which focuses on nonstructural flood risk reduction integrated with protection of natural resources and agricultural lands.

In addition, the PEIR prepared for the CVFPP includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) on pages 3.3-34 and 3.3-35 of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in

agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed.

**G\_CFBF1-03**

As stated in Master Response 2, the conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified. The CVFPP states the preference to work with willing landowners for needed land acquisitions. All land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable.

**G\_CFBF1-04**

See response to comment I\_G\_CFBF1-03. Furthermore, as stated in Master Response 2, the CVFPP is a high-level document that describes the State's vision for a sustainable flood management system in the Central Valley. The SSIA is a responsible and balanced investment approach to achieve this vision. The CVFPP and its PEIR do not permit any specific actions to move forward that would be subject to further evaluation under CEQA. The CVFPP does not provide detailed project descriptions or funding assurances, nor does it preclude any future actions that could contribute to the State's flood management goals.

The 2012 CVFPP outlines a broad range of potential physical and institutional projects and actions to reduce flood risks. Some actions identified in the SSIA can be implemented within the existing footprint of the SPFC, while others will require new lands and/or easements. Because the SSIA was developed at a conceptual or program level, it does not identify any specific project; therefore, any lands or properties that may be needed to implement the plan are unknown at this time. Initial, preliminary

planning-level analyses indicate that actions outlined in the SSIA (expansion of the bypass system; new bypasses; and levee reconstruction, including levee setbacks) could expand flood system lands by as much as 40,000 acres. However, this initial estimate will be refined during follow-on studies and further analysis conducted after adoption of the CVFPP. It is anticipated that land uses within any expansions of the flood management system would be a mix of flood facilities and agricultural and environmental conservation uses; however, the exact amount and geographical distribution of these land uses will require further analyses as future specific projects are considered and evaluated.

### ***G\_CFBF1-05***

As stated in Master Response 13, a multiphase public engagement planning process informed development of the 2012 CVFPP and provided many different venues for communicating and engaging with a broad range of partners and interested parties. This extensive public engagement process for plan development, which began in January 2009, involved about 450 people representing public agencies, businesses, interest-based organizations, and members of the public. The process included nearly 300 meetings and more than 40 publications, in addition to development of a public Web site and webinars. A full list of participants and forms of engagement in plan development are available in Attachment 5, “Engagement Record,” in Appendix A, “Central Valley Flood Protection Plan.” The participants in the engagement process assisted DWR in identifying problems, developing CVFPP goals, identifying the range of management actions to consider in the CVFPP, and reviewing and commenting on the draft content of the CVFPP.

#### **Engagement Specifics:**

Phase 1 of the public engagement planning process focused on identifying problems and needs and crafting specific goals for the CVFPP. A variety of regional and topic-based work groups formed during this phase. Phase 2 focused on identifying individual actions that could be taken to achieve the CVFPP goals, and engaged stakeholders through continued regional and topic-based work groups and public workshops.

After Phase 2, stakeholders indicated that they preferred to review more developed materials and information before continuing with intense working meetings. With that understanding, DWR focused its efforts on content development (considering previously provided input and ongoing analyses) and developed a cohesive working draft document for stakeholder review in fall 2011. Outreach efforts included e-mail communications and updates, workshops, webinar briefings, and meetings with individuals and agencies. Work group members were also given an

opportunity to review and comment on a working draft of the CVFPP. However, with a commitment to complete a public draft CVFPP within the legislated time frame, the degree of engagement provided in Phases 1 and 2 was not feasible for Phases 3 and 4.

The Board provided various opportunities for members of the public and agencies to comment on the public draft CVFPP, released in December 2011. Hearings were held in 2012 on April 5 (Sacramento), April 6 (Marysville), April 9 (Stockton), and April 11 (Woodland), and public comments were heard and discussed at both regular and special Board meetings. DWR also accepted comments on the DPEIR, which was released in early March 2012. More information on the Board's process for public review and plan adoption can be found on its Web site, <http://www.cvpfb.ca.gov>.

Anticipated activities after adoption of the 2012 CVFPP include regional flood management planning, development of basin-wide feasibility studies, and completion of project-level proposals and environmental compliance. These efforts will engage local entities and stakeholders to help identify projects to meet local and regional needs for flood management, refine the conceptual system elements proposed in the adopted plan, and identify specific projects for construction.

As part of regional flood management planning, regional plans will be prepared with active participation by regional implementing, operating, and maintaining agencies; local land use agencies (counties and cities); agricultural and environmental interests; emergency responders; and tribes. This effort will collect on-the-ground information regarding flood risks and needs, identify local and regional improvement projects, assess the performance and feasibility of these projects, and develop plans that reflect the priorities of local entities in reducing flood risks in each of the nine regions identified in the CVFPP. Each plan will also assess proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. Development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts.

Two basin-wide feasibility studies will be prepared, one in the Sacramento River Basin and one in the San Joaquin River Basin, to refine the major system elements proposed in the 2012 CVFPP (such as bypass expansion and new bypasses) and assess their compatibility with prioritized local projects identified through regional flood management planning. These combinations of system element options and regional elements will form "alternatives" for further evaluation and comparison on a systemwide scale.

Stakeholder engagement will be an important and complex component of the basin-wide feasibility studies. It is anticipated that work groups will form to help evaluate and refine physical options for system elements (e.g., bypass expansion and new bypasses), identify implementation challenges, and provide input into the planning process. The feasibility studies will be conducted in close coordination with USACE (and ongoing federal feasibility studies) and local implementing agencies.

The regional and basin-wide feasibility planning efforts will help identify specific improvement projects for design and environmental review. Stakeholders and the public will have additional opportunities to provide input. The draft feasibility reports and any accompanying environmental documentation will be made available to the public for review and comments.



# CALIFORNIA FARM BUREAU FEDERATION

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**G\_CFBF2**

Sent via E-Mail

cvfppcom@water.ca.gov

April 20, 2012

Ms. Nancy Moricz  
Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento, CA 95821

Re: Comments on the Public Draft 2012 Central Valley Flood Protection Plan

Dear Ms. Moricz:

G\_CFBF2-01

The California Farm Bureau Federation is a non-governmental, non-profit, voluntary membership California corporation whose purpose is to protect and promote agricultural interests throughout the state of California and to find solutions to the problems of the farm, the farm home and the rural community. Farm Bureau is California's largest farm organization, comprised of 53 county Farm Bureaus currently representing more than 74,000 agricultural, associate and collegiate members in 56 counties. Farm Bureau strives to protect and improve the ability of farmers and ranchers engaged in production agriculture to provide a reliable supply of food and fiber through responsible stewardship of California's resources.

Farm Bureau thanks the Central Valley Flood Protection Board for the opportunity to submit the following line-by-line comments on the Draft Central Valley Flood Protection Plan:

Page #	Text	Comment
p. 1-16 last paragraph re: climate change adaptation:	"Over the past 40 years, State and federal environmental laws and regulations have been developed to reduce environmental impacts of human activities, such as those related to endangered species, fisheries, wetlands, and water quality. While progress has been made in achieving the goal of reducing environmental impacts of	The language in this section strongly suggests that new and expanded surface water storage--and not just expanded bypasses or setbacks below-- should be part of the plan; yet, they are not. The required lead time and cost of such improvements are significant; therefore, these elements should be included as potential future components now.

NANCY N. McDONOUGH, GENERAL COUNSEL

ASSOCIATE COUNSEL:

CARL G. BORDEN · KAREN NORENE MILLS · CHRISTIAN C. SCHEURING · KARI E. FISHER · JACK L. RICE

	<p>human activities, more can be achieved in terms of reducing impacts, and restoring some of what has been lost. One challenge is that these laws and regulations have added to the complexity, cost, and time required to plan, design, construct, operate, and repair portions of the flood management system. Future flood management practices will need to continue to adapt to current and new environmental regulations." "as the moderating effects of snowpack on runoff decrease, there will be a need for more water supply storage, putting greater pressure on California's multipurpose flood control reservoirs, as the moderating effects of snow-pack on runoff decrease, there will be a need for more water supply storage, putting greater pressure on California's multipurpose flood control reservoirs."</p>	<p>Ultimately, potential new storage is no more controversial, nor is it any more uncertain than large bypass expansions on tens of thousands of acres of farmland. The plan should not now shy away from such projects, or defer appropriate analysis and planning to subsequent updates.</p> <p>Also, as recently pointed out in the public comments on the plan, new storage could have significant "multiple purpose" benefits (e.g., water supply, species protection, climate change mitigation, flood protection, etc.), and should for this very reason be considered.</p>
<p>G_CFBF2-02</p> <p>p. 1-17, 2nd paragraph:</p> <p>G_CFBF2-03</p>	<p>"Over the past 40 years, State and federal environmental laws and regulations have been developed to reduce environmental impacts of human activities, such as those related to endangered species, fisheries, wetlands, and water quality. While progress has been made in achieving the goal of reducing environmental impacts of human activities, more can be achieved in terms of reducing impacts, and restoring some of</p>	<p>Here and elsewhere, the plan appears to suggest that habitat features of the plan will ease environmental restrictions. It is a concern of agriculture that the opposite may be true: That is, that more habitat will bring more restrictions. The flood plan must include assurances to ensure, to the greatest extent possible, that the former is the case, and not the latter.</p> <p>Also, there is a related</p>



	<p>what has been lost. One challenge is that these laws and regulations have added to the complexity, cost, and time required to plan, design, construct, operate, and repair portions of the flood management system. Future flood management practices will need to continue to adapt to current and new environmental regulations"</p>	<p>question as to whose regulatory burden such habitat elements could, or would benefit. For example, it is possible that such improvements might benefit one area of the state, or one region over another, or one group of stakeholders, while harming others. From the standpoint of basic fairness, financing, assurances, and mitigation must all compensate and appropriately adjust for this fact.</p> <p>Particularly, for the region where these habitat projects would occur, if the trade-off is between habitat and a proportionate easing of the regulatory burden in these same regions, then this result, and not the contrary, must be an assured outcome under the final adopted plan.</p>
<p>p. 1-18 re: land ownership:</p>	<p>"Land ownership underlying the facilities of the SPFC is a patchwork of private and public parcels. A variety of easements cover many private parcels and these easements have been established for a variety of different and often site-specific purposes. The types and terms of these easements relate to, for example, periodic flooding, conservation of agricultural land, and habitat restoration. This patchwork of land ownership and easement terms both constrains and</p>	<p>It is unclear what the plan proposes here. It appears that the intent is to describe some problem. However, it is not clear what the problem is--or what solution is being proposed. Is the problem private ownership of land? Is it the diversity of different easement types, or restrictiveness of the terms of those easements? Also, what is proposed? Less private land ownership? More public ownership? More uniformity in easement terms? How would this be achieved--and is</p>

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	<p>complicates the potential for providing flood or environmental improvements over areas greater than individual parcels."</p>	<p>it a desirable outcome, from a societal, private property rights, flood engineering, and policy standpoint?</p> <p>Our view is that preserving private land ownership and control to the maximum extent possible should be an express goal of the plan. Also, respecting and enforcing the purposes of existing easements as encumbrances on the land may well create additional "constraints," or "complicate[] the potential for providing flood or environmental improvements"; however, until these encumbrances are removed, they represent a burden that "runs with the land" and must be respected.</p> <p>For example, many flood easements require lands to be maintained free from vegetation which might impair flood conveyance capacity or function. In many cases, such restraints were put in place for a reason, when the bypasses were created--and, for these same reasons, such restrictions should be a future of any new easements, to maintain the intended flood protection functions of the flood projects.</p> <p>Preserving agricultural land uses in perpetuity as well, may in many cases be a desirable type of restriction, to reduce the need for long-term</p>
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		<p>maintenance (on-going removal of vegetation, snags, and debris), while also conserving the productivity of the land, the local tax base, etc.</p>
<p>G_CFBF2-05 p. 1-18, 3rd full paragraph:</p>	<p>"[W]here wildlife habitat is proposed in proximity to existing agricultural lands, the impacts of plowing, spraying, and harvesting of agricultural lands on nearby wildlife habitat and, conversely, the impacts of protected species on agricultural lands, must both be carefully addressed to successfully implement long-term environmental enhancement projects."</p>	<p>If farmers and agricultural landowners are not extended express assurances that expanding habitat in the floodways and in proximity to agricultural lands, it is highly foreseeable that such habitat expansion will significant local opposition.</p> <p>If the state desires more habitat, the state must then provide adequate assurances that such habitat will be compatible with agriculture and flood protection, and that farmers and agricultural landowners will not incur increased liabilities, or reduced flood protection as a result of such habitat.</p>
<p>G_CFBF2-06 p. 1-19 re: FEMA mapping, with and without project:</p>	<p>"In the absence of the CVFPP, current trends would likely continue. Among the most notable trends are the following:</p> <ul style="list-style-type: none"> <li>• FEMA's ongoing flood risk mapping program, conducted in coordination with State and local communities, will remap the floodplains protected by the SPFC with less than 100-year (1% annual chance) flood protection. This will impose significant long-term burdens on farms, homeowners, and businesses in these areas, including higher flood</li> </ul>	<p>Aside from language pledging the state's "support" for current FEMA NFIP efforts by rural and agricultural stakeholders, we are not aware of anything the flood plan would do to alleviate the FEMA situation--unless it has to do with model building standards required under S.B. 5, or except, perhaps, with respect to small communities that would be provided 100-year protection. With respect to rural and agricultural areas, the plan currently says it would not provide 100-year</p>

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	<p>insurance premiums and limitations on repairing, reconstructing, and expanding structures."</p>	<p>protection. If the flood plan would alleviate or address the FEMA issue in some manner, please clarify how and where this is the case.</p>
<p>pp. 1-19, 1-20 re: rural vs. urban areas, federal funding:</p>	<p>"These regulations also do not take into account the long-term benefit of integrating environmental restoration projects, thus undervaluing the importance of rural projects. The historical federal/State/local partnership has created a dichotomous system in which urban areas have a much higher level of protection than rural-agricultural areas and receive the majority of available funding. Since the passage of Propositions 1E and 84, the State has taken a stronger leadership role in the project delivery process, including project formulation, design, and advancing of funds to cover much of what traditionally has been the federal cost share, with the hope of obtaining credit against future State cost-sharing obligations."</p>	<p>There is something wrong with either a federal or state system that sees no benefit to investment in rural levees separate any purported environmental restoration benefit.</p> <p>The system is an integrated one--and most of that system exists in what are now rural and agricultural areas. These lands, as they currently exist, protect urban areas and provide may current environmental benefits, over and above the already significant, independent social and economic benefits such lands produce.</p> <p>If the federal government cannot see these benefits, then it is no less incumbent on the State of the California to see them and take the lead in protecting them.</p> <p>Environmental restoration goals should not be accorded a monopoly on public benefits that, in turn, ignores the supporting benefits of agricultural and rural areas.</p> <p>Policies set in the flood plan should reaffirm these significant values.</p>

			<p>A flood plan that presents a compelling vision that includes a strong commitment to adequate flood protection for rural and agricultural areas, while ensuring the compatibility of proposed habitat goals, can then set the course toward a stronger and more equitable system overall. Proper economic valuation of agriculture in the flood plan could also help to alleviate this problem.</p>
G_CFBF2-08	<p>p. 1-20, last full paragraph:</p>	<p>"The State has a fundamental interest in promoting the health and safety of its people, robust and sustainable economic growth, and a healthy ecosystem."</p>	<p>Add a reference to the well-being of agriculture, as a "fundamental state interest," as reflected in numerous other areas of state policy (e.g., "a vibrant agricultural economy, "protecting California's unique agricultural resource base and economy," "continued production of food and fiber," etc.).</p>
G_CFBF2-09	<p>p. 1-20, second to last full paragraph re public outreach.</p>	<p>"well-represented interests of involved local, State, and federal agencies, and special interest, nongovernmental organizations. The CVFPP also takes into consideration the interests of the State as a whole, which are typically not represented by any special interest group, in promoting the wise stewardship of public funds and natural resources."</p>	<p>Farm Bureau disagrees that farmers, agricultural landowners, and many local interests, including local governments were "well represented" or informed of the process and its potential effects (including the nature and magnitude of the project's footprint). In fact, even for those of us who did endeavor to participate, the nature and extent of some of the most significant aspects of the plan (including, especially, the levee setback and bypass proposals) were completely</p>

		<p>unclear before the release of the November 2011 Working Draft.</p> <p>Furthermore, Phase 3 and 4 of the process, dealing with the selection of management actions and the different possible approaches, never occurred before the release of the draft plan. It is also unclear who is the arbiter of "wise stewardship" or "interests of the state," if the plan does not adequately reflect the wants, needs, and concerns of all of the major constituents and interests affected. While it is understood that DWR's Draft Plan is a draft document and, by and large, a technical document, the Flood Board's job is now to ensure the plan as a whole accurately reflects the needs and wants of all of the major constituencies and geographic areas that would be affected.</p>
<p>G_CFBF2-10 p.1-20 re: terminology, text box, last paragraph:</p>	<p>"Systemwide. Evaluations on a "systemwide" basis consider how all the parts of the river basin and flood protection facilities interrelate in the movement of floodflows from rim reservoirs through the Delta. In other words, the evaluations consider the workings of the entire system rather than more traditional approaches that may only evaluate short reaches of levee along a river."</p>	<p>While a traditional reach-by-reach approach to flood risk and flood infrastructure analysis could certainly benefit from a system-wide perspective, it is also true that system-wide evaluations can no doubt benefit from reach-by-reach evaluation and firsthand, on-the-ground knowledge.</p> <p>One of the potential, major problems with the Flood Plan, as it currently stands, is the</p>

		<p>apparent lack of such perspective. In particular, we have found that farmers, landowners, and other local interests frequently have intimate, on-the-ground knowledge of local flood system characteristics and watersheds, that no amount of engineering expertise could easily replace.</p> <p>The lack of extensive local input into the plan to date is, we believe, a major shortcoming of the plan. It is our hope that this shortcoming can be cured in the regional planning and feasibility study phases of project development, through close collaboration with local residents, farmers, landowners, and local flood agencies.</p>
<p>pp. 1-21 through 1-24 re: systemwide analysis vs. feasibility study &amp; project-level planning:</p>	<p>On 1-21: "The CVFPP is a descriptive document. It is not a systemwide feasibility study of sufficient detail to support project-specific actions such as authorizing legislation, design, and construction. It is intended to provide a foundation for prioritizing Central Valley flood risk reduction and ecosystem restoration investments, including feasibility studies on appropriate scales – from valleywide to project-specific." On p. 1-22:</p>	<p>See related comment concerning p.1-20 re: terminology, text box, last paragraph.</p> <p>The relationship between the Flood Plan, as a "high-level," "conceptual" "descriptive document," and subsequent phasing, cost-benefit, feasibility and project-level studies and analyses is presently very unclear.</p> <p>These linkages should be made much clearer and more explicit. Without such clarity, it is otherwise difficult to know precisely what the plan</p>

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	<p>"Investments in levees and other flood protection infrastructure will be considered on a systemwide basis."</p> <p>On p. 1-24: "[T]he CVFPP gives careful attention to fixing known weaknesses in the rural-agricultural levee system and also protecting small communities. Because rural-agricultural areas are less developed, the State is interested in seeing more nonstructural improvements, as these often can have lower long-term annual operations and maintenance costs and greater system benefits. With this in mind, the CVFPP provides a framework for a much broader benefit analysis than the traditional approach, which relies almost entirely on the benefit-to-cost ratio and net economic development indicators to guide investments."</p> <p>On, again, on p. 1-24: "The CVFPP focuses on implementation and considers the sequential phasing of incremental elements of the programs. This approach relies on development of a firm technical foundation to inform implementation actions in future CVFPP phases, with an initial focus on the most urgent flood management system needs. It also supports development of a sound funding strategy to pursue</p>	<p>gets us, or where we go from here.</p> <p>This presents somewhat of a dilemma, and even a contradiction, since, on the one hand, general, high uncertain and conceptual elements must necessarily be left vague; yet, if such elements are to provide the "blueprint" for second-tier analyses and planning processes to come, there must then be some level of relative certainty as to the origin and the basis for the "blueprint," and also some sufficient detail in terms of the specific linkages contemplated for the next phases of planning.</p> <p>As noted previously, even "high-level," "conceptual," and "systemwide" planning should not be done in isolation from pertinent cost-benefit, feasibility, local planning considerations.</p> <p>The "black box" nature of Phases 3 and 4 creates a natural lack of public confidence in the validity of many of the plan's "high-level" conclusions, recommendations, and assumptions, and this lack of confidence is compounded by the current lack of certainty concerning the next level of planning.</p> <p>To remedy this situation, at</p>
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	<p>effective, long-term flood management in the Central Valley."</p>	<p>least in part, details of DWR's non-public Phase 3 and Phase 4 planning steps must be explained, reopened, revisited, and refined in regional planning. Also, the plan must better describe specifics of follow-on phasing and sequencing, prioritization, and regional planning and implementation, including specific processes to involve local interests and entities as full planning partners in the process.</p>
<p>pp. 1-24 through 1-26 re: outreach activities:</p>		<p>See related comments above (re: public outreach, p. 1-20). Two important clarifications here are: first, that local interests were generally not apprised of the plan or its potential effects, notwithstanding DWR's outreach process, and, second, that Phases 3 and 4 ("evaluating solutions" and "formulating approaches") were completed by consultants without public scrutiny or involvement, although public involvement was originally contemplated as part of the process.</p> <p>We understand that this was related, at least in part, to the magnitude of the task given by the Legislature to DWR, as well as the shortness of the legislative deadlines set under S.B. 5. On the other hand, it also strikes us that there is perhaps now a potential silver lining," and an opportunity to</p>

		<p>be seized in regional planning, precisely due to the hurried, non-public manner in which these critically important phases were carried out.</p> <p>Fortunately, regional and project-level planning over the next 20 to 25 years should now provide much more ample opportunity to revisit and refine the "solutions" and "approaches" developed in DWR's Phases 3 and 4--this time with much more extensive and meaningful public involvement than would have been possible in the run up to adoption of an initial Flood Plan, as mandated by S.B. 5. Until such public vetting and refinement of plan elements has occurred, the plan's broad conclusions and recommendations, as adopted in the final plan, should be qualified and bracketed accordingly.</p>
<p>p. 1-24, first full paragraph/bullet, re: ecosystem restoration and maintenance.</p>	<p>"The CVFPP proposes to take an integrated system approach to maintenance and ecosystem restoration. In practice, this means an approach that promotes implementation of a future flood management system footprint that provides additional habitat area to help support recovery of listed species and other State conservation goals while reducing flood risk by reducing long-term maintenance needs."</p>	<p>The assumption that restoring large areas of habitat will not require more, not less maintenance, needs explanation and substantiation, to say the least. For example, while slowing flood waters down and reducing water levels might conceivably reduce levee erosion in some areas, restored areas in floodplains would require thinning and on-going maintenance and could also cause flood waters to back up.</p>

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		<p>If the state's assumption is that habitat areas can be created and then left to nature, this assumption alone could greatly undermine or negate numerous other assumptions, concerning system capacity, flood risks, urban and rural protection, agricultural conversion, economic impacts, levee integrity, local assurances, etc.</p> <p>On the contrary, the following language from p. 1-17 is a candid description of a much more plausible scenario, with respect to restored habitat and long-term maintenance needs: "Improving habitat in ways that reduce, or at least do not substantially increase, needs for maintenance of flood facilities will be important. Additional long-term funding may be needed where such improvements substantially increase maintenance needs."</p>
<p>p. 1-28 re: costs of improvements:</p>	<p>"Costs of capital improvements and programs were also evaluated on a reconnaissance level for the purpose of comparing preliminary approaches. Cost estimates used in this report were based on 2011 dollars. More detailed cost evaluations, taking into account financing costs, inflation, and implementation time, will be developed as part of a Financing Plan for the CVFPP and during subsequent feasibility study analyses."</p>	<p>Even if only at a "reconnaissance level," a key inquiry for the state's Flood Plan should be a comparison of the ranges of costs for the different "approaches" and improvements relative to the expected economic benefit, in terms of increased asset protection per dollar spent, etc. The macro-scale cost-benefit ratio of any finally selected approach should be positive.</p> <p>If none of the proposed</p>

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		<p>approaches equates to a positive gain for California, at the proposed cost, then simpler, smarter, less expensive or down-scaled, and more effective approaches should be considered. At this point, preliminary analyses by a Mr. Lauren Ward, of Butte County, suggest the cost-benefit ratio for each of the approaches proposed by the state is currently negative. If so, this may suggest a need to consider potential new or modified alternatives.</p> <p>Creating flood capacity by expanding new surface water storage, for example, instead of relying on large setback and bypass projects on the valley floor, is a significant value-generating strategy not included in the current SSIA approach. (Specifically, potential benefits from new storage space include, for example, statewide waters supply and water reliability benefits, water quality benefits, cold-water and instream flow benefits, increased flood space, and potential, significant climate change adaptation benefits.)</p>
<p>p. 1-29 re: local and regional studies, future "course correction":</p>	<p>"Future updates to the 2012 CVFPP will incorporate new and revised information and also review and realign goals and actions as specific projects are implemented and conditions in the Central</p>	<p>DWR's approach to local and regional studies, including DWR's and the Flood Control's plan for local engagement and participation, needs better description in the final adopted version of the</p>

	<p>Valley evolve. Additional activities, such as local and regional studies, federal feasibility studies, and environmental compliance evaluations, will occur to support implementation of physical elements or features of the CVFPP."</p>	<p>Flood Plan. In addition, "reviewing," "revising," and "realigning" plan goals and action, the plan should say more much specifically and concretely, what aspects of the plan may change in the future, how much they might change, and how.</p> <p>Among other things, this is important for agricultural landowners, in terms of certainty and long-term planning, to the extent many such agricultural landowners would now be faced with continuing their existing operations in the shadow of some very large, but otherwise amorphous impacts.</p>
<p>G_CFBF2-17 p. 1-29 re: implementation schedule and financing plan:</p>		<p>How will the public--and, particularly, how will local agencies, landowners, and farmers--be involved in development of the mentioned "implementation schedule and financing plan"?</p>
<p>G_CFBF2-18 p. 3-1:</p>	<p>"The regional and system elements require detailed analyses to refine how elements may complement each other and to develop appropriate justification for future selection of on-the-ground projects."</p>	<p>Suggest revision of text to read, "to refine how elements may complement [and constrain] each other...." The point is that it can be expected that regional and system elements may not only "complement" each other, but that, in some cases, regional elements or considerations, particularly at the feasibility level, may in fact "constrain" proposed system elements, and vice versa. Ultimately, the two should inform each other--and, in this sense,</p>

		<p>perhaps overall, "complement each other." Before this can occur, however, it may first be necessary to consider, in greater detail, how these competing considerations or levels of analysis may also "constrain" each other.</p>	
G_CFBF2-19	<p>p. 3-2, 1st full paragraph:</p>	<p>"Major physical (capital improvement) elements included in the SSIA are shown in Table 3-2 and in the schematics in Figures 3-1 and 3-2 for the Sacramento and San Joaquin river basins." Suggested rewording to read: "Major PROPOSED physical (capital improvement) elements include...."</p>	<p>Also, consider again reiterating, as noted above and elsewhere in the plan, that proposed elements may be "refined, added, or deleted," etc., in response to feasibility level planning, local and regional input, etc.</p>
G_CFBF2-20	<p>p. 3-3, Table 3-2, heading:</p>	<p>Heading currently reads, "Major Physical and Operational Elements of Preliminary Approaches and State Systemwide Investment Approach"</p>	<p>Suggest rewording to read, "Major Physical and Operational Elements of Preliminary Approaches and PROPOSED ELEMENTS OF Systemwide Investment Approach."</p>
G_CFBF2-21	<p>p. 3-4, table 3-2, "Small Community" and "Rural-Agricultural Improvements":</p>		<p>The SSIA should include the "Target Design Capacity" element included in "Achieve SPFC Design Flow Capacity" and "Enhanced Flood System Capacity" as a first-tier goal for the Flood Plan.</p> <p>The plan should seek to achieve these "Design Capacity" targets through a combination of traditional levee improvements and expanded reservoir storage capacity.</p> <p>To the extent these targets can be achieved by these means,</p>

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		<p>this should result in a proportionate reduction in the need for large proposed bypasses and setbacks.</p> <p>To the extent these targets cannot be achieved, this should then trigger second-tier consideration of any other methods and approaches to flood protection and flood management.</p> <p>Also, whether the plan adopts targeting "Design Capacity" for small communities and rural areas as a plan goal systemwide or not, any "site-specific rural-agricultural improvements," "based on levee inspections and other identified critical levee integrity needs," should, in any case, delineate clear and consistent levee criteria, including a rural levee standard or targeted minimum levels of protection, considering the different thresholds and categories of assets and communities protected in the Central Valley.</p>
p. 3-4, Table 3-2 re: Fish Passage Improvements:		<p>In addition to carefully examining and balancing assumed ecosystem benefits of proposed fish passage improvements in the Yolo Bypass against relevant economic and agronomic considerations and potential conflicts, the Flood Plan--and any follow-on studies of such proposals in the Flood Plan--</p>

		<p>should especially consider both the wisdom and feasibility, in addition to the relative costs and benefits, of the proposals to provide "fish passage" in the Sutter Bypass and "east of [the] Butte Basin" (the proposed "Feather River Bypass"?).</p> <p>Our initial assessment is that the relative costs and attendant impacts and potential adverse effects of these proposals--including farmland conversion impacts, regional economic impacts, potential ESA liabilities, high implementation costs, and possible significant fish stranding risks, when compared with slight or negative fish benefits--could well outweigh the anticipated benefits of such improvements. In light of the many potential adverse effects, the Sutter Bypass and Butte Basin-area fish passage proposals in the SSIA should be clearly identified as tentative proposals only, subject to subsequent, detailed analysis and consideration of the improvements' relative costs and benefits.</p>
<p>pp. 3-10, 3-11, Sections 3.4, 3.4.1: Rural-Agricultural Area Flood Protection</p>	<p>"3.4 Rural-Agricultural Area Flood Protection Rural-agricultural area levee improvements included in the SSIA are not as extensive as for urban areas and small communities, reflecting the lower levels of development</p>	<p>Aside for the commitment concerning crown heights and all-weather access roads, the language in this section appears to reveal a primary emphasis, for rural and agricultural areas, on setback levees, habitat restoration, and</p>

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	<p>within these floodplains. In addition to improving flood management, project designs will consider restoring shaded riparian aquatic habitat, wetlands, or other habitat. This includes protection and enhancement of existing healthy ecological communities, in addition to the enhancement/restoration of degraded ecosystem services and functions. Flood risk reduction projects in rural-agricultural areas that can achieve multiple resource benefits will be preferable to single purpose projects, and are likely to be encouraged through enhanced State and federal cost-sharing. In general, the State will consider the following rural-agricultural flood protection options, with a focus on integrated projects that achieve multiple benefits: [...]</p> <ul style="list-style-type: none"><li>• SPFC levee improvements in rural-agricultural areas will focus on maintaining levee crown elevations and providing all-weather access roads to facilitate inspection and floodfighting.</li><li>• Levee improvements, including setbacks, may be used to resolve known performance problems (such as erosion, boils, slumps/slides, and cracks). Projects will be evaluated that reconstruct rural SPFC levees to address identified threat</li></ul>	<p>using rural and agricultural areas as a safety valve, in the form of "transitional storage," as opposed to the plan's stated primary objective of flood protection.</p> <p>The phrase "multiple benefits," as used throughout the plan, becomes a byword for "ecosystem restoration," and here, as elsewhere, is expressly linked to the availability of state and federal monies. (In other words, rural and agricultural flood projects that do not incorporate ecosystem restoration will be assigned a lower priority, or even become non-priorities, unless they include ecosystem restoration. Similar, the terms "nonstructural approach," as employed in the plan, refers essentially to large setbacks, bypass expansions, and transitional storage concepts-- whereas these things, in turn, appear to be the quid pro quo expected of any rural and agricultural areas that would seek or desire any significant level of state or federal cost-sharing on regional flood improvements in these areas. However, a fundamental problem here (beyond the associated farmland and regional economic effects, that is) is that, to subordinate the need for flood protection in rural and agricultural areas to the perceived need for</p>
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	<p>factors, particularly in combination with small community protection, where economically feasible.</p> <ul style="list-style-type: none"><li>• Agricultural conservation easements that preserve agriculture and prevent urban development in current agricultural areas may be purchased, when consistent with local land use plans and in cooperation with willing landowners."</li></ul>	<p>ecosystem restoration, ignores two key points: First, it ignores the fact that these two, distinct objectives are not also compatible--and, in many cases, may in fact be antithetical. Second, it ignores the primacy of flood protection and flood risk reduction as supposed primary goals of the flood plan. Thus, as many commentors have put it, it makes the "flood plan," first and foremost, a "habitat plan"-or, at least, an "urban flood protection and habitat plan," and not a rural or agricultural flood plan.</p> <p>Although the commitments on crown heights and development a rural-agriculture repair standard are appreciated, neither of these commitments ensures that rural or agricultural levees will be restored to the SPFC's original 1955-1957 design profile, or provides any assurance that restored habitat will not be allowed to further encroach upon and impair already inadequate flood capacities over time.</p> <p>The plan also makes no firm or clear commitment on specific "levee improvements" or any particular set of rural-agricultural levee repair standard. Furthermore, there is no adequate discussion or description of the overall process associated with even</p>
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		<p>these extremely vague commitments.</p> <p>To foster greater confidence and support for the plan among rural and agricultural stakeholders, additional detail, clearer standards, and more concrete, definite commitments and assurances are needed.</p> <p>California's agricultural economy is not only a regional and local asset, and does not result only in private benefits to farmers and individual landowners: As a whole, California agriculture provides strategic statewide and national, social, economic and environmental benefits of national and statewide significance. There are, therefore, significant state and federal interests in California's agriculture that should be acknowledged and reflected in the plan. A major shortcoming of the plan is that it fails to recognize these interests.</p>
G_CFBF2-28	p. 3-11, 3rd bullet point:  "Agricultural conservation easements that preserve agriculture and prevent urban development in current agricultural areas may be purchased, when consistent with local land use plans and in cooperation with willing landowners."	The purpose of the proposed agricultural easements, as well as the geographic location, spatial extent, nature and terms of these easements, etc. is not adequately explained, either here or anywhere else in the plan. Is the purpose to "preserve agriculture," to provide incidental habitat benefits, to prevent urbanization, to acquire land or otherwise establish state

		<p>control or state restrictions on land use, such that levees, levee standards, or the relative level of flood protection afforded rural and agricultural areas might be reduced or avoided? Such questions are very pertinent to the "willing seller" assumption built into this rural and agricultural component of the plan--and, yet, no answers are provided. Whatever the purpose or purposes of these easements or how they would work, the flood plan must do a better job explaining just what this might be.</p>	
G_CFBF2-29	<p>p. 3-11:</p>	<p>"SPFC levee improvements in rural-agricultural areas will focus on maintaining levee crown elevations and providing all-weather access roads to facilitate inspection and floodfighting."</p>	<p>What is the footprint of proposed "all-weather access roads" and associated rights-of-way, how and where would these lands be acquired, and has DWR considered access issues, with respect to private agricultural lands and operations?</p>
G_CFBF2-30	<p>p. 3-13, second to last paragraph:</p>	<p>"When consistent with local land use plans, and in cooperation with willing landowners, the State will consider purchasing agricultural conservation easements adjacent to the Sutter and Yolo bypasses to preserve agriculture and prevent urban land uses."</p>	<p>See related comment concerning the third bullet on p. 3-11 re: agricultural easements.</p>
G_CFBF2-31	<p>p. 3-13:</p>	<p>"This weir and bypass system redirects damaging floodflows away from the main channels of the Sacramento, Feather, and American rivers, conveying up to 490,000 cubic</p>	<p>The text does not say by how much capacity would be increased--or how much land this would require and where--and it is not clear where else in the plan, or any</p>

	<p>feet per second during large flood events." and "Bypass expansions would increase the overall capacity of the flood system to convey large flood events."</p>	<p>of the many technical appendices that accompany it, this information can be found. This is important information and should be more readily accessible, assuming it is in the plan at all. It is important to get an accurate sense of the magnitude of the plan's purported benefits. Beyond this, another pertinent consideration, when calculating or estimating system capacity, is the the extent to which proposed and potential habitat restoration features of the landscape might reduce or compromise any gains in capacity over time. (This should include habitat restoration, both a part of the plan, and occurring outside of it.)</p>
<p>p. 3-13 re: Sutter Bypass Expansion:</p>	<p>"Future studies to refine specific project elements related to bypass expansion should consider increasing the capacity of the Sutter Bypass to convey large flood events. Expansion would likely require building a new levee for about 15 miles along one side of the bypass to widen the bypass for increased flow capacity. Although the required width of the bypass has not been determined, DWR used a 1,000-foot increase in the bypass width for planning purposes. The evaluations for planning purposes were initially based on 75 percent of the new</p>	<p>The words "studies to refine specific project related to bypass" suggest, on one hand, that the decision concerning expansion of the Sutter Bypass has been already made, and that future studies will only "refine specific elements" of that proposal. On the other hand, however, the words "should consider the capacity of the Sutter Bypass" suggest that this decision has NOT yet been made, and rather that the mentioned future studies will only "consider" increasing the Bypass' capacity.</p> <p>Also, with respect to the 1,000-ft increase and the</p>

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width allocated to agricultural use and 25 percent allocated to habitat restoration."

assumed 75/25 agricultural and habitat split, there is currently no indication whether this corresponds to an actual proposal, even generally, or whether there is any such correspondence to any project that is actually proposed or that might actually be constructed.

It is unclear whether the graphic depictions of the proposed bypasses in the "Major Capital Improvements" maps in the plan correspond to the proposed widths and percentages mentioned. Nor are there any more detailed maps of the proposed bypass and habitat area or any discussion of how the assumed 25 percent area of habitat would be spatially and functionally distributed in relation to the assumed 75 percent agricultural land, or how these respective percentages would be maintained and made compatible. All of these details are key considerations for potentially affected stakeholders, yet the plan includes none of this information.

p. 3-14 re: Yolo Bypass:

Again, with respect to the "bypass expansion" in the Yolo Bypass, the plan lacks detail--and, yet, the text gives the impression that there *are* details that are simply not part of the plan. For example, the

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		<p>references to expansion of the upper and lower portions of the Bypass and the reference to 42 miles of levees suggest a level of detail not seen in the plan itself.</p> <p>In fact, a DWR map of proposed modifications in the area that was recently published in the Sacramento Bee was far more detailed than the map found in the plan itself.</p> <p>To the extent definite decisions have been made with respect to the new and existing bypasses, or specific designs proposed or approved, knowing what lands would be impacted and where, is very important to enable informed decision-making and local input on the project.</p> <p>From an agricultural standpoint, it also highly relevant to long-term planning and investment by private landowners in agricultural operations on potentially impacted lands. This level of detail is not currently found in the plan.</p>
p. 3-14, Section 3.5.2 re: Feather River Bypass:		<p>The text states that the proposed "Feather River Bypass" would "primarily provide benefits to the urban areas of Yuba City/Marysville." On page 3-14 above, however, the plan includes the following discussion:</p>

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		<p>"Yuba City and City of Marysville – Improvements for this metropolitan area and adjacent urbanizing corridor (along Highway 99 north of Yuba City, and along Highway 70 within and south of Marysville) include the following:</p> <p>» Continue work to reconstruct and/or improve SPFC levees to urban design criteria along the Feather and Yuba rivers immediately adjacent to Marysville, consistent with ongoing local efforts.</p> <p>The State is supporting ongoing work to achieve an urban level of flood protection for the City of Marysville as part of the Yuba Basin Project. This project encompasses four phases of levee improvements and other actions, with an ultimate goal of protecting Marysville from a 250-year (0.4% annual chance) flood event.</p> <p>» Continue to work with Sutter Butte Flood Control Agency to develop and implement projects to achieve an urban level of flood protection for Yuba City and adjacent urbanizing areas. This includes reconstructing and/or improving SPFC levees to urban design criteria along the right bank of the Feather River, adjacent to and upstream from Yuba City, as</p>
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		part of the Feather River West Levee Project."
p. 3-15, Section 3.5.2 re: Lower San Joaquin Bypass:	"Evaluate the construction of a new bypass in the south Delta (expansion of Paradise Cut and/or other south Delta waterways), primarily for the purpose of reducing peak flood stages in the Stockton area."	<p>Whether it is with respect to the Lower San Joaquin Bypass or to any of the other proposed bypass expansion proposals, and whether it is for the SSIA and any subsequent refinements or revisions of the SSIA, or for any other "approach" existing now or which may come into existence at some later date, the flood plan and any subsequent regional planning or project specific or feasibility level studies or documents tiering off the flood plan must ultimately weigh the benefits of anticipated peak flood stages reduction or attenuation, increases in system capacity, or other anticipated flood risk reduction benefits in relation to the relative impacts and projected costs of each alternative or plan component.</p> <p>At the current programmatic level of detail, a preliminary look at anticipated flood risk reduction benefits versus anticipated costs and impacts suggests that there is possible negative benefit to cost ratio at the projected cost of \$14-17 billion, for program implementation over 20-25 years.</p> <p>The objective cost of any alternative or discrete plan components finally selected</p>

		<p>by the State of California should justify both the relative impacts and the relative costs of such improvements. This level of analysis is not currently found in the plan.</p> <p>The state should look for less expensive ways to achieve core flood plan objectives, while at the same time achieving greater benefits, including multiple benefit and asset-building projects. In particular, the plan should consider potential multiple benefits and relative costs of new surface water storage, as an express component of the flood plan and key part of the state's overall strategy on flood issues, water supply, climate adaptation, and ecosystem rehabilitation.</p>
G_CFBF2-38	p. 3-15 re: Flood System Structures:	<p>"[O]pportunities to expand fish passage at SPFC structures will be considered."</p> <p>See above concerning Table 3-2 on pp. 3-4 re: Fish Passage Improvements.</p>
G_CFBF2-39	pp. 3-15, 3-16, Section 3.5.4 re: Flood Storage:	<p>"3.5.4 Flood Storage Preliminary systemwide analyses have identified potential benefits and opportunities for reservoir flood storage and operational changes for flood management in the Sacramento River and San Joaquin river basins. Flood storage may reduce the need for some types of downstream actions, such as levee improvements, and can offset the hydraulic effects of system improvements on downstream reaches. Additional flood storage can</p> <p>Regarding the perspective reflected in the excerpted text, generally, Farm Bureau believes the failure to consider potential reservoir expansions, along with other potential program components at the programmatic level, greatly prejudices the potential for systematic development and integration of such elements in subsequent updates and stages of regional and statewide flood planning.</p> <p>As the text acknowledges, additional reservoir space has</p>

	<p>also provide greater flexibility in accommodating future hydrologic changes, including climate change, and provide greater system resiliency (similar to that provided by freeboard on levees) in the face of changing downstream conditions.</p> <p><b>New Reservoir Storage</b> The only new surface water storage included in the SSIA is the Folsom Dam Raise, which is already authorized. During future feasibility studies, the State may consider partnering with other willing agencies on expanding existing reservoir storage.</p> <p><b>Transitory Storage</b> The SSIA has not identified specific floodplain transitory storage, but may consider such storage on a willing-seller basis where consistent with local land use plans, all affected land owners support such storage, and the new flood storage area can be safely isolated from adjacent areas (easements or fee title)."</p>	<p>potential to provide significant flood protection benefits-- while at the same providing many additional non-flood-related benefits in other areas (e.g., water supply, water quality, climate change adaptation, ecosystem protection, etc.). Additionally, as noted, additional upstream storage space can "reduce the need for some types of downstream actions," such as levee setback and bypass expansion projects.</p> <p>In contrast, the plan's disproportionate focus on "transitory storage" only, as opposed to traditional storage, wrongly prejudices, predetermines, and reduces the range of possible outcomes and solutions, while at the same time apparently betraying a certain implied bias against traditional surface water storage projects, on the part of the planners, or at least the planning process itself.</p> <p>The plan should recommend express integration of system-capacity expansion through potential expansion of existing surface water storage capacity, as an immediate priority.</p>
<p>p. 3-16, Section 3.5.5 Conjunctive Use and Groundwater Recharge:</p>	<p>"the SSIA provides opportunities for in-channel groundwater recharge and, although not recommending any specific recharge projects at this time, encourages</p>	<p>The plan should expressly recommend and outline potential regional planning or feasibility level planning efforts or processes to identify potential conjunctive use and</p>

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	<p>exploring recharge opportunities in the San Joaquin River Basin, especially for capturing a portion of high flows from snowmelt, where feasible."</p>	<p>groundwater recharge opportunities for both water supply and flood control purposes.</p> <p>The Bureau of Reclamation and the Madera Irrigation District's Madera Ranch recently approved conjunctive project, for example, is a consummate example of such an opportunity.</p> <p>Such efforts are particularly important in the context of the San Joaquin River Restoration Agreement, the State Water Resource Control Board's San Joaquin River Flow Standard Review process, approaching FERC relicensing projects in that watershed, and other processes potentially affecting water supply in the San Joaquin River Basin and Watershed.</p> <p>Flood plan efforts in this area could overlap, build on, or leverage existing efforts, including the regional water planning and local conjunctive use and groundwater management projects in the area. Also, potential conjunctive use and groundwater recharge opportunities should not be viewed in isolation for potential climate change adaptation, fisheries restoration, water quality, water supply, potential reservoir reoperation and</p>
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		<p>reservoir coordination, and surface water storage expansion proposals.</p> <p>In other words, state, federal, and regional interests should approach all of these things, as equal partners, from an integrated planning perspective, on multiple scales, from district level, to stream and watershed-base, to regional or basin-wide, to statewide planning.</p>	
G_CFBF2-41	<p>p. 3-17 re: Weir and Bypass Operational Changes:</p>	<p>"The State proposes to investigate modifying the function and operation of weirs that spill floodwater to the bypasses in the Sacramento River Basin. The concept is to physically lower crests of overflow weirs and modify operations so that bypasses carry flows earlier and for longer durations during high river stages. These changes would reduce river stages and flood risks along main rivers. Depending on timing, duration, and a host of related hydraulic factors, the more frequently activated flood-plain in the bypasses would potentially provide a more productive rearing habitat for juvenile salmonids and other native fish and may provide riparian habitat."</p>	<p>See related comments at p. 3-15 and pp. 3-4, Table 3-2 (Re: proposed fish passage improvements).</p>
G_CFBF2-42	<p>p. 3-18, 1st full paragraph, re: Weir and Bypass Operational Changes:</p>		<p>The text states "extending the duration of bypass flooding could interfere with ongoing agricultural practice." Accordingly to comments from a number of agricultural</p>

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		<p>stakeholders familiar with such matters, we are informed that the potential impacts for extending flooding of the bypasses can actually extended to agricultural lands outside of the bypasses, in the form of seepage. This can in turn affect the suitability of these lands, the existing agricultural practices and crop types grown on these lands. The flood plan and any subsequent planning or CEQA documents tiering off of it, must consider these effects.</p>
<p>pp. 3-21, 3-22, Section 3.7 Integrated Ecosystem Restoration Opportunities:</p>	<p>"Integrating environmental stewardship early into policy and project planning, development, and implementation will help move beyond traditional project-by-project compensatory mitigation."          "This approach also creates the opportunity to develop flood management projects that may be more sustainable and cost-effective."          "Flood protection projects that are integrated with environmental restoration components have the potential to increase federal and State cost-sharing for flood management projects and make improvements more affordable for local entities."          "Flood protection projects that are integrated with environmental restoration components have the potential to increase federal and</p>	<p>The goals described are good ones in concept. Piecemeal mitigation and costly and complicated permitting requirements currently stymie necessary levee improvements and maintenance. Removing these impediments and doing so in a systematic, well thought-out way is a good idea.</p> <p>Also, these concepts are potentially compatible with the state's proposed vegetation management policy, which is an attempt at a practical compromise on the new, essentially infeasible Army Corps requirements. All of that said, however, any ecosystem improvements incorporated into our Central Valley flood system must be fully compatible with adjacent land uses and intended flood functions.</p>

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	<p>State cost-sharing for flood management projects and make improvements more affordable for local entities." "DWR's goal in integrating ecosystem restoration and enhancement is to achieve overall habitat improvement, thereby reducing, or eliminating the need to mitigate for most ecosystem impacts."</p>	<p>Such improvements must also not swallow the plan's primary goal of "flood risk reduction," and must also require active management, with defined limits over time. The plan should expressly extend such assurances.</p>
<p>pp. 3-22-3-24, Section re: Climate Change Adaptation Strategy:</p>	<p>"DWR's goal in integrating ecosystem restoration and enhancement is to achieve overall habitat improvement, thereby reducing, or eliminating the need to mitigate for most ecosystem impacts. Therefore, the new hydrology will be most useful in technical evaluations leading to the 2017 update of the CVFPP." "Since available climate change information does not present probabilistic characteristics, DWR is working on the concept of prudent decision making that focuses on investments that could accommodate a broader range of climate change scenarios rather than optimizing investments within a few selective scenarios." "[I]mproved climate change information will allow more detailed evaluation of potential climate change impacts on the SPFC and refinement of approaches to</p>	<p>The text suggests that updated, more detailed, and potentially more accurate or reliable climate information will not be fully integrated into the flood plan until the 2017 update--and yet also suggests that evolving information in this area will figure as a consideration in regional and feasibility-study planning, applying the "prudent design" concept as a proxy during the interim period.</p> <p>We have several comments here:</p> <p>First, it strikes us that, to wait until 2017 for a comprehensive data set is, in one sense, too long to wait, since planning, and implementation of meaningful climate change adaptation strategies, in the event current climate changes are borne out, may require significant lead-time and, therefore, significant upfront effort now.</p>

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manage higher floodflows and sea levels during preparation of regional plans and feasibility studies."

Second, to look at potential climate change effects solely in a flood control context is to take too limited a view. Since the effects of a changing climate could potentially impact a wide range of resources and state interests extending significantly beyond flood control alone, the State of California should be approaching this issue in a broadly integrated fashion, through interagency and interdisciplinary cooperation. Within DWR alone, for example, climate change efforts in the Flood Plan, on the California Water Plan, by the California Water Commission, by the Climate Change Action Team, and on the CALFED Surface Storage Investigations should all be closely coordinated with other pertinent state, federal, regional, and local planning processes, in addition to pertinent national, international, scientific, private sector and academic efforts in this area.

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Third, the flood plan's current focus on "transitory storage," bypasses, and releasing or evacuating water from reservoirs ignores the other possibility which is to expand reservoir capacity to capture and retain more water upstream to, in turn, achieve multiple objectives--including, especially, statewide water



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		<p>supply benefits.</p> <p>Fourth, even as the projected effects of climate change, as currently hypothesized and debated, are at least potentially significant and far-reaching, at the same time, it is also true that the exact nature and extent of these effects is highly uncertain at the present time.</p> <p>Given this tension, the state's strategy should be to move as quickly as possible toward a point where responsible decisions can be incrementally made, using the best and most reliable information possible, while at the same time resisting a potential opposite desire or tendency to rush to judgment on decisions that may be premature.</p> <p>As a centerpiece of the State of California's "prudent planning" stance on climate change, the state should move quite aggressively forward on potential climate change adaptation strategies, and should also work to significantly improve the quality and reliability of the science in support of them, over the next several years. At the same time, however, the state's approach should be pragmatic, with an emphasis on adaptation and mitigation of potential social and economic effects, as opposed</p>
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		<p>to causal prevention, where there is, first, insufficient scientific justification, both as to the need for or efficacy of such causation-centered approach at this time, and, second, where there are presently no sufficient protocols, economic alternatives or regulatory mechanisms to ensure the success of such approach, even if one were to assume it is necessary.</p> <p>What it is possible to say, even now, is that, from a much more limited practical and critical resource-based standpoint, integration of complementary flood control- and water supply-related purposes should be a major focus of the state's selected "prudent planning" approach to the issue of climate change- and this approach should be reflected in the flood plan through active consideration of expanded upstream storage capacity.</p>
<p>pp. 3-30-3-32, Estimated Cost of SSIA:</p>	<p>"Table 3-5 summarizes the preliminary estimate of costs for the SSIA, assuming all elements are ultimately completed. Estimates include costs for capital improvements and 25 years of ongoing annual work to maintain the system. Estimated costs are in 2011 dollars."</p> <p>"Section 4 also shows cost estimates over a more certain time period of 10 years that will allow near-term</p>	<p>The source or basis of the cost ranges included in the plan for the SSIA is not identified. At a minimum, DWR should cross-reference any relevant material included in the technical appendices. For example, here, presumably, Attachment 8J, the "Cost Estimate" appendix would be one such reference. (As a more general comment, concerning the Flood Plan as a whole, the credibility</p>

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	<p>projects to be constructed as longer term projects are under additional evaluation."</p>	<p>transparency, and accountability of the document would be significantly improved by cross-references to technical appendices and external sources throughout.)</p>
<p>pp. 3-38-3-39 re: Benefit to Local and Regional Economies:</p>	<p>"Increased benefits to regional economies – Implementing the SSIA would directly and indirectly benefit local and regional economies and support continued economic development in the valley. Implementation of the plan would reduce the potential for lost agricultural, commercial, and industrial production/income, and secondary “ripple” effects, as a result of a flood. "</p> <p>"Flood management improvements would reduce direct crop damages. Improved flood protection would result in an increased ability to obtain favorable crop insurance coverage and rates. Similarly, improved protection would also increase the ability to obtain agricultural loans with favorable terms. As a result, flood management improvement has the potential to contribute to improved agricultural sustain -ability. Over 90 percent of the citizens in rural-agricultural areas and small communities within the SPFC Planning Area could receive additional flood</p>	<p>The discussion of benefits to agricultural lands and area remaining after moving 40,000 acres of agricultural land into the floodways, and then converting 10,000 of those acres to habitat, ignores or fails to consider the deleterious effect on these lands. Nor does it consider the potential adverse impacts on the productive capacity of 70,000 to 115,000 acres of lands targeted by the plan for agricultural easements, and 50,000 to 75,000 of those 70,000 to 115,000 acres targeted for "transitional storage" (which is to say intentional periodic or temporary overflow of "peaks flows" from adjacent rivers and streams by design).</p> <p>Not only are the potential detrimental effects of these proposals not considered, they were also not even explicitly discussed in the Draft Flood Plan. Rather, all of this information is buried in an obscure technical appendix to the plan (Attachment 8J, the "Cost Estimate" attachment). As a separate comment on the public process for the Flood Plan, generally, in light of this</p>

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	<p>protection by levee improvement measures, flood proofing, and relocation opportunities presented in the SSIA."</p>	<p>information, we believe it is only fair to again decry the utter lack of appropriate public disclosure and outreach to affected interests concerning these matters.</p>
<p>p. 108, Section 3.14.1 Reduced Economic Flood Damages:</p>	<p>"Results of the modeling indicate an overall reduction in total expected annual damages of about 67 percent, with specific reductions in damages and losses as follows:          - Structure and contents flood damages would be reduced by 72 percent          - Crop damages due to flooding would be reduced by 6 percent          - Business production losses would be reduced by 72 percent"</p>	<p>The source or basis of the 6 percent reduction estimate on crop damages should be referenced, and any embedded assumptions described.</p> <p>For example, it would appear this estimate is 6 percent valley-wide. But how do crop damage reductions vary from region to region? Does this account for agricultural lands or crops that would be sacrificed or compromised through the bypass expansions to provide the 6 percent increase to the rest? Also, 6 percent versus 72 percent reveals a large disparity in terms of anticipated benefits for rural and agricultural areas, versus benefits for urban areas.</p> <p>What determined the level of effort or expense that would confer a 72 percent benefit on urban areas, but just a 6 percent benefit on agricultural areas? Is this a policy decision, or a decision that has some objective or economic justification? Were other specific levels of protection considered and/or rejected? Does 6 percent vs. 72 percent properly and fairly value our agricultural lands as a food</p>

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		<p>source? A source of jobs and important economic activity, and an irreplaceable asset to both the state and the nation? What specific level of protection or what specific improvements to rural and agricultural levees does the 6 percent figure assume?</p>
<p>p. 3-41, re: Ecosystem Restoration Benefits:</p>	<p>"Floodways would be expanded and extended to improve the flow carrying capacity of the channels, and the lands acquired for the expansion would be used for habitat restoration and environmentally-friendly agricultural activities. Over 10,000 acres of new habitats would be created within the flood management system. In addition, over 25,000 acres of land would be leased for growing grains, corn, and other habitat-compatible crops. "</p>	<p>The plan includes little or no information concerning spatial distribution, or anticipated configurations of the proposed habitat areas in relation to adjacent agricultural areas. Secondly, this section implies that lands would be purchased or condemned in fee title, and some 25,000 acres then "leased back" for "grains, corn, habitat-compatible crops" and "environmentally-friendly agricultural activities."</p> <p>These statements are very vague and leave many questions unanswered: For example, what is "environmentally-friendly agricultural activities"? And what about "agricultural-friendly habitat restoration"? (In reality, the latter is as much or more a consideration and a concern as the former-- and yet it is not discussed.)</p> <p>As to the inference that lands would be acquired outright, this conflicts with the public statements of DWR officials, indicating that DWR's "preference" would be to</p>

		<p>maintain as much land as possible in private ownership, and to take flow easements consistent with this preference, in lieu of fee title acquisition. Thus, for example, this official correctly noted that keeping agricultural lands on the local tax rolls is a benefit to protect and preserve the local economies and communities.</p> <p>To clarify these issues, an appendix or separate discussion or description of potential land acquisition tools and alternatives to fee title acquisition could be very helpful to overcome fears which may be rooted, in large part, in a lack of pertinent information.</p> <p>In addition, as noted elsewhere, a compendium or separate description, reference, or resource describing agricultural assurances, and habitat planning and subsequent maintenance approaches or mechanisms, would be similarly helpful.</p>
pp. 3-43-3-44, Small Community Land Use, Rural-Agricultural Area Land Use:	"The SSIA supports the continued viability of small communities within the SPFC Planning Area to preserve cultural and historical continuity and important social, economic, and public services to rural-agricultural populations, agricultural enterprises, and commercial	<p>The overall approach described is logical from a statewide perspective, and yet not necessarily compatible with local priorities and decision-making.</p> <p>While it is understood that the state may have reasons for not wanting to "encourage" urban</p>

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	<p>operations. Under the SSIA, several small communities within the SPFC Planning Area would achieve 100-year (1% annual chance) flood protection through structural means such as ring levees, where feasible. This would preserve small community development opportunities within specific boundaries without encouraging broader urban development."</p> <p>"The SSIA includes improvements for rural-agricultural flood protection, but excludes participation in flood projects to achieve 100-year (1% annual chance) flood protection that would be growth-inducing and, thus, increase potential flood risks. The SSIA includes many elements to preserve rural-agricultural viability, such as purchase of conservation easements to preserve agriculture and prevent urban development, when consistent with local land use planning and in cooperation with willing landowners."</p>	<p>growth in floodplains, by investing state monies in projects that are potentially inconsistent with state planning policies, these state policies should not usurp local land use planning authority, or operate as a bar on potential local improvements or projects, where local or private interests independently undertake to achieve 100-year or higher protection for their local areas.</p> <p>It is also erroneous to conclude that agricultural conservation easements--and especially flowage easements for "transitory storage" purposes--are necessarily beneficial, or conducive to "preserv[ing] rural-agricultural viability."</p> <p>In particular, if such easements are overly restrictive (for example, by restricting agricultural practices or crop types), or if they would expose or subject agricultural lands to frequent or extended inundation, such easements could, in fact, impair the economic and productive capabilities of these lands. The plan should recognize this fact. Furthermore, if, as stated, the goal is to "to preserve the robust agricultural economy of the Central Valley," in addition to being acquired on a willing seller basis, with</p>
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		<p>broad local consensus, the terms of any such flood or agricultural conservation easements should expressly seek to further this goal.</p>
<p>p. 3-44 re: Rural-Agricultural Area Land Use:</p>	<p>"The State will work with FEMA's National Flood Insurance Program to promote the continued sustainable rural-agricultural economy and to examine opportunities to provide affordable flood insurance for low risk agricultural and farming structures in the floodplain."</p>	<p>This pledge is helpful and appreciated--but also offers little in the way of concrete action. Describing specific actions beyond "working" and "examining opportunities" in this area could clarify the practical application of this section and make it more useful as a distinct flood plan component. Moreover, some commitment to more concrete action could even serve as a form of potential mitigation to offset some the plan's potential adverse impact on the state's agricultural resources, and also to achieve the plan's goals in terms of "sustainable economic activities."</p>
<p>p. 4-1 re: Flood Management Programs:</p>	<p>"DWR's major flood management programs are as follows: - Flood Emergency Response Program - Flood System Operations and Maintenance Program - Floodplain Risk Management Program - Flood System Assessment, Engineering, Feasibility, and Permitting Program - Flood Risk Reduction Projects Program"</p>	<p>An interest feature of these existing DWR flood management programs is that the primary focus of all of them is, essentially, flood protection.  This focus is consistent with the original purpose of the flood projects themselves. From this perspective, it is somewhat troubling to note the potential for substantial dilution of this primary purpose, with the Draft Flood Plan's significant, and in places even dominant, new</p>



		<p>overlay in the area of ecosystem restoration. The Flood Plan--and the Flood Board and DWR through the Flood Plan--should ensure that the state does not lose this historical focus on the primary objective of flood risk reduction, both in urban areas, and for small communities and local and regional economies in rural and agricultural areas.</p> <p>Ecosystem restoration should be a secondary objective--and, then, only where wholly compatible with the primary goal of flood risk reduction.</p>
<p>p. 4-6, Section 4.1.3, Floodplain Risk Management Program:</p>	<p>"The State supports efforts to reform the National Flood Insurance Program that would result in more equitable implementation while reflecting corresponding flood risks. Nationally-supported flood insurance premiums and payouts should be commensurate with demonstrated flood risk for a structure or area to encourage sound floodplain management at the State, local, and personal levels. Structures that sustain flood losses outside FEMA Special Flood Hazard Areas should be evaluated and their flood insurance premiums adjusted based on their full risk of flooding. In addition, to sustain agricultural communities and support the natural and beneficial functions of flood -</p>	<p>See related comment on p. 3-44 above.</p>

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	<p>plains, FEMA should consider establishing a flood zone for agriculturally-based communities to allow replacement or reinvestment development in the floodplain for existing structures. The State will work with FEMA to consider a special, lower rate structure that reflects actual flood risks for agricultural buildings in rural-agricultural areas located in Special Flood Hazard Areas."</p>	
<p>G_CFBF2-57 pp. 4-7-4-8 re: Integrated Flood System Improvements and Permitting / Conservation Planning:</p>	<p>"Integrated Flood System Improvements and Permitting DWR has initiated integrated flood management programs that could also facilitate permitting processes for implementing flood risk reduction programs and operations and maintenance of the flood management system in the Central Valley. Below are descriptions of major programs to achieve the goal of implementing multiobjective projects while facilitating programmatic permitting for flood management activities. Upon adoption of the CVFPP, these programs could inform DWR and partnering agencies in developing the Conservation Strategy that promotes implementation of integrated multiobjective projects while reducing or eliminating the need for mitigation, facilitating project</p>	<p>Subject to the many caveats concerning impacts to agricultural lands and compatibility of proposed habitat restoration features that are the dominant theme of these comments, it is nonetheless only fair to acknowledge that the concepts here described are, at least in theory, potentially useful ones. Specifically, reducing excessive permitting requirements and reducing costs through systematic planning could potentially represent a significant benefit to the system.</p>

	<p>permitting and reducing the costs and the time needed to acquire required permits." "Conservation Planning DWR, through development of the future Conservation Strategy, is evaluating systemwide and regional permitting approaches that will bring efficiencies to the approval processes for project construction and operations and maintenance activities." "DWR, through development of the future Conservation Strategy, is evaluating systemwide and regional permitting approaches that will bring efficiencies to the approval processes for project construction and operations and maintenance activities."</p>	
G_CFBF2-58 p. 4-8 re: Corridor Management Strategy:	<p>"Corridor Management Strategy The Corridor Management Strategy involves developing a vision, strategy , and plan (Corridor Management Plan (CMP)) for managing river corridors that integrate flood risk management, improved ecosystem function, and water management over a long-term planning horizon (greater than 30 years). A CMP includes a strategy for man -aging flood protection facilities, conveyance channels, floodplains, and associated uplands; a maintenance plan; and a restoration plan. A CMP also identifies policies for compatible land uses, such as agriculture and recreation,</p>	<p>Again subject to all of the many concerns raised herein with respect to agricultural lands, habitat, etc., it strikes us that the described "Corridor Management Strategy" is a potentially useful concept. If this model is indeed employed hereafter, it seems to us that such a process could represent a significant opportunity to much more meaningfully involve local interests in the development of solutions that seek to resolve conflicts and achieve an overall level of local consensus.</p>

	<p>within the corridor. In addition to addressing habitat restoration and flood facility maintenance, CMPs are a foundation for securing programmatic regulatory agency approvals for ongoing maintenance activities and routine habitat restoration. CMPs rely on coordination, collaboration, and cooperative working relationships with interested parties and stakeholders, including State, federal, and local agencies, nongovernmental organizations, maintenance districts, agricultural interests, and landowners." "CMP strategies are a means of restructuring existing flood management practices and policies implemented within a given management area to benefit and enhance the environment without compromising actions required by practices and policies."</p>	
G_CFBF2-59 p. 4-8 re: Rural-Agricultural Area Flood Management:	<p>"It is also clear that the combined resources of local agencies, the State, and the federal government will not be sufficient to improve the levees protecting rural-agricultural areas to meet the current 100-year level of flood protection performance standards. The CVFPP recognizes these realities, but also notes that it is important to improve flood protection for rural-agricultural areas, to the extent feasible, on a</p>	<p>Removing the unduly grudging and parsimonious qualifier "to the extent feasible, on a prioritized basis," and instead ending the sentence by saying, simply, that "it is important to improve flood protection for rural-agricultural areas" would greatly improve the tone of this section. The same goes for the qualifiers "when feasible" and "and where feasible" in the second and fourth paragraphs.</p>

	prioritized basis."	<p>Removing these qualifiers does not, of course, commit the state to unconditionally doing every rural-agricultural project in the world--but it at least commits the state to do something more than nothing. Since other portions of the plan suggest that it is neither the state's intent to do nothing for rural-agricultural areas, but nor is it the state's intent to do everything, these deletions would appear to have no practical effect at all--and, yet, the psychological and political effect would be notable.</p> <p>Because "feasibility" is, of course, a fairly essential requirement for any project that is not "infeasible," it would then seem that the useful qualifiers "when feasible," "where feasible," etc., are only unnecessary irritants for stakeholders who would like to hope the state will be so completely uncommitted to the state's rural and agricultural areas as this language would suggest.</p> <p>We would ask the state adjust the language of the plan in the manner suggested.</p>
pp. 4-10-4-11 re: Rural-Agricultural Area Flood Management:		The commitments to "[address] known, localized performance problems or levees that have experienced distress during past flood events, prioritized based on flood risk," to "[[r]epair] rural-

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		<p>agricultural erosion sites identified by the latest inspection, on a priority basis (most critical first), and to "[d]evelop rural-agricultural area levee repair standards, in coordination with local and regional flood management agencies," are appreciated--as is the commitment to "work with FEMA to evaluate the feasibility of a program to provide post-flood recovery assistance to rural-agricultural areas."</p>
<p>G_CFBF2-61 pp. 4-18-4-19, Section 4.4, Refining Flood System Investments:</p> <p>G_CFBF2-62</p>	<p>"To prepare the State feasibility studies, the State will first work with local agencies to prepare regional flood management plans. These plans (see Section 4.4.1) will include assessment of levees in each levee Flood Protection Zone (FPZ), will identify reasonable and feasible solutions to remedy the areas needing repair , and will include a regional financial framework. The State will use the regional plans as foundational information and will integrate the plans with system improvement feasibility analyses to prepare the two basin-wide feasibility studies."</p>	<p>As noted with respect to "corridor management planning," above, it would seem that the proposed "regional planning processes" represent a key mechanism to correct the lack of direct local involvement in development of the plan and to instead extensively engage local interests, including agricultural stakeholders and local governments in the next planning phase.</p> <p>As with the comments concerning "integrate floodplain management" and "corridor management planning" above, this comment is made subject to all of the other same caveats that otherwise pervade these comments, regarding the plan's potential adverse impacts on agricultural lands and economies, as well as the potential threat of unbridled and widespread habitat</p>

		restoration as a part of our Central Valley flood system.
p. 4-19, Section 4.4.1, Regional Flood Management Plans:	"Regional Flood Management Plans To document site-specific flood system improvement needs and to involve local agencies in developing local investment strategies, the State will work with local entities and engage other interested stakeholders to define local flood system improvements that support the SSIA. This work will be site-specific for individual river reaches and likely begin with each FPZ within the potential implementation regions. FPZs are the smallest planning unit for gathering and organizing data and evaluating the costs and benefits of proposed flood management actions as they relate to overall systemwide improvements. Flood protection needs within the FPZs of an implementation region will be aggregated into regional flood management needs that, in turn, will be used to formulate regional projects/programs and associated feasibility analyses."	See related comment immediately preceding.
G_CFBF2-63 p. 4-20 re: Regional Flood Management Plans:	"The State proposes to provide a greater cost-share at the local level for environmentally beneficial projects, such as setback levees."	See related comment on pp. 3-10-3-11 re: Sections 3.4, 3.4.1: Rural-Agricultural Area Flood Protection.
G_CFBF2-64 p. 4-22, Section 4.4.2 Assisting Local Agencies in	"4.4.2 Assisting Local Agencies in Land Use	It is remarkable that so far into the process there has been no

<p>Land Use Planning:</p>	<p>Planning                  The Central Valley Flood Protection Act requires each city and county within the Sacramento- San Joaquin Valley to amend its general plan to include flood-related information gathered for and presented in the CVFPP, within 24 months of the Board adopting the CVFPP. To assist local agencies in complying with the law, DWR will prepare the following information and make it available to local agencies:</p> <ul style="list-style-type: none"> <li>- Information gathered and used in the CVFPP.</li> <li>- Maps and geographic information system (GIS) data used to generate maps in the CVFPP and related documents.</li> <li>- Levee inspection data and completed geotechnical assessment results of SPFC facilities and related non-SPFC facilities, where data are available.</li> <li>- Water surface elevations for 100-year and 200-year flood events.</li> <li>- 100-year and 200-year inundation maps of the areas protected by the facilities of the SPFC.</li> <li>- Criteria for demonstrating an urban level of flood protection, including urban levee design criteria."</li> </ul>	<p>advance exchange of any of this information. The legislative task set for the local governments is, first of all, unclear; but, secondly, it is hardly a trifling one--and yet many local governments seem to be learning of the process just now. Unfortunately, like the tens of thousands of acres of agricultural lands potentially impacted under the plan, of which agricultural stakeholders are just now learning, the dearth of information that has been made available to affected local governments to date epitomizes what many perceive as the rushed, top-down nature of the CVFPP process to date.</p> <p>To ensure a fairer process, based on informed participation, it is absolutely essential that the state begin to immediately rectify this situation in the next phases of the process.</p> <p>The state can do this by conferring full partner status on local interests in the regional planning, feasibility, and project implementation phases of the plan--and, of course, in subsequent updates to the plan as well. Without such an approach, it is not difficult to predict, there will little local support for the plan.</p>
<p>p. 4-26 re: .4.5 Program Coordination,</p>	<p>"The State supports investing in "no-regrets" programs and</p>	<p>From an agricultural stakeholder standpoint, we</p>



<p>Communication, and Integration:</p>	<p>actions that clearly enhance system resiliency, integrate programs and resources, and preserve flexibility for future generations. Actions that fall into this category may include the following:</p> <ul style="list-style-type: none"><li>» Acquisition of agricultural conservation easements where compatible with local land use plans (especially in deep floodplains adjacent to existing flood conveyance channels).</li><li>» Expansion of existing river and bypass channels through levee set-backs, creation of new flood bypass channels, and development of wildlife and fisheries habitats in the bypass system, creating open space and integrating with recreation activities."</li></ul>	<p>object to the term "no regrets programs activities," as used here, to describe acquisitions of agricultural easements, lands, and rights-of-way, levee setbacks, and bypass expansions.</p> <p>The term is awkward and inaccurate, from an agricultural standpoint, to the extent that the agricultural community and many of the affected local communities have by no means arrived at a point where they would consider such large-scale impacts to be free of "regret."</p> <p>On the contrary, these concepts were not properly vetted with affected communities before the release of the plan and, at this point, they have little to no buy-in from affected agricultural stakeholders and affected local communities.</p> <p>At a minimum, Farm Bureau suggests rephrasing the opening sentences in the excerpted portion of text to read as follows:</p> <p>"[Subject to subsequent refinement, including participation from local stakeholders in regional planning and feasibility phases,] the State supports investing in [...] programs and actions that [...] enhance system resiliency, integrate</p>
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		<p>programs and resources, and preserve flexibility for future generations. Actions that [might] fall into this category include...."</p> <p>In contrast, Farm Bureau would instead tend to view the following as true "no regrets" activities:</p> <ol style="list-style-type: none"><li>1. The "rural-agricultural flood management improvements" listed on pages 4-10 and 4-11;</li><li>2. The "Flood System Operations and Maintenance Program" and "Floodplain Risk Management Program" related "Near-term Priority Actions" identified, for Rural-Agricultural Areas," on pages 4-31 and 4-32;</li><li>3. The "Floodplain Risk Management Program" related goals on page 4-32;</li><li>4. The "Flood System Risk Assessment, Engineering, Feasibility, and Permitting" related goals, on page 4-32, to "[better engage] partners and stakeholders," "[e]valuate the feasibility of initiating a program to provide post-flood recovery assistance to rural-agricultural areas," and "[p]rovide programmatic permitting for operations and maintenance of the flood management system."</li></ol> <p>Farm Bureau would also view levee work to achieve legislatively mandated 200- and 100-year protection from "high risk" urban and</p>
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		<p>urbanizing communities, work toward development of long-term surface water expansions, and the "Flood Risk Reductions Projects Program" related goals to work with local interests to design, permit, and implement feasible improvements for "high-risk urban and urbanizing areas," "small community projects," and "rural-agricultural area flood management activities," as discussed on page 4-33, to be "no regrets" actions.</p> <p>Proposals to purchase easements and lands for large bypasses, large-scale habitat restoration, and transitional storage need significant additional vetting and buy-in-- not to mention full documentation of cost-benefit ratios and project feasibility-- before such improvements could be considered "no regrets" actions.</p>
p. 4-30 re: "Near-Term Priority Actions":		See related comments on "no regrets" actions on page 4-26 above.
pp. 4-32-4-33:		Many of the long-term activities here described are objectionable at this point, to the extent they would appear to commit the State of California and the major stakeholders and affected communities and areas of the state to an approach that was never properly vetted through these stakeholders or these communities, and that these

		<p>stakeholders and communities do not currently support.</p> <p>To the extent the state endeavors to move such long-term concepts and planning processes forward at all, it should do so only upon a foundation of strong bottom-up regional planning, corridor management planning, integrated floodplain management planning, and feasibility-level planning, in direct partnership with local agencies and local stakeholders.</p> <p>The long-term planning activities to which this comment refers include the objectives, on pages 4-32 and 4-33, to:</p> <ol style="list-style-type: none"><li>1. "Launch a major effort to coordinate FloodSAFE activities with all levels of USACE, and with Congress to refine USACE feasibility study processes under the two State basin-wide feasibility studies, for the purpose of facilitating timely federal cost-sharing of flood management projects in the Central Valley";</li><li>2. "Perform two basin-wide feasibility studies: one for the Sacramento River Basin and one for the San Joaquin River Basin";</li><li>3. "Complete the Conservation Strategy";</li><li>4. "[P]repare a long-term</li></ol>
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		<p>implementation plan for presentation in the 2017 CVFPP [...] [upon] completion of the State basin-wide feasibility studies and refinement of the projects];</p> <p>5. "Complete the Financing Plan for the CVFPP in 2013";</p> <p>6. "Acquire lands, rights-of-way, and easements to implement systemwide projects, including extending and expanding the bypass system and ecosystem restoration components, as soon as studies to further refine the locations of the lands to be acquired are completed."</p>
<p>G_CFBF2-70</p> <p>p. 4-35, Section 4.6.2 Implementation Phasing:</p> <p>G_CFBF2-71</p>	<p>"4.6.2 Implementation Phasing [...] Phasing of system improvements will help accommodate the timing of project planning, design, land acquisition, partnering, etc., as well as funding availability. [...] Phase I will generally occur within five years (2012 to 2017) of CVFPP adoption. DWR will begin working on priority improvements, such as improved flood forecasting and emergency response, land use planning initiatives, enhanced operations and maintenance practices, and flood risk reduction projects. Physical on-the-ground improvements will focus on continued efforts to improve flood risk reduction in urban areas, develop small community and</p>	<p>In our view, consistent with related comments already made elsewhere herein, Farm Bureau views the identified work on "priority improvements" and on "[p]hysical on-the-ground improvements," as described, to be appropriate actions ready for near-term implementation in Phase I.</p> <p>With respect to the last item under Phase I, to "initiate" "development and feasibility evaluations and land acquisitions for expansion of the bypasses," please see our related comments, concerning Phase 1 long-term planning and property acquisition activities, on pages 4-32 and 4-33, above.</p>

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	rural flood risk reduction projects, repair erosion sites, and implement ecosystem improvements, where feasible. The Conservation Strategy will be developed, and feasibility evaluations and land acquisitions for expansion of the bypasses will be initiated."	
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California Farm Bureau Federation thanks you for the opportunity to comment on the Public Draft 2012 Central Valley Flood Protection Plan.

Yours truly,



Justin E. Fredrickson  
Environmental Policy Analyst

**California Farm Bureau Federation, Justin E. Fredrickson**

***Response***

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As stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction for the CVFPP to "...include a description of both structural and nonstructural means for improving the performance and elimination of deficiencies of levees, weirs, bypasses, and facilities, including facilities of the State Plan of Flood Control, and, wherever feasible, meet multiple objectives..." (CWC Section 9616(a)). The legislation further identifies 14 objectives, two of which address water supply and groundwater recharge (CWC Sections 9616(a)(3) and 9616(a)(14)).

The CVFPP includes a high-level discussion on integrating water supply benefits with flood management improvements. The SSIA elements focus on public safety and improvement of flood management, consistent with the legislative direction and CVFPP primary goal; however, implementing these elements could improve water management because expanding floodways and the bypass system could improve the flexibility of reservoir operations and increase in-channel groundwater recharge. The SSIA describes potential opportunities for integrating water supply benefits with proposed flood management actions, but it does not include specific project recommendations related to water supply because of the need for future site-specific proposals and analyses. During post-adoption activities (regional flood management planning and development of basin-wide feasibility studies), additional details will be developed, including specific water management features as part of multi-benefit projects, in collaboration with interested local and regional agencies and organizations.

In addition, the DPEIR evaluates the potential effects of the proposed program on water supply; for example, see Section 3.11, "Groundwater Resources," and Section 3.13, "Hydrology." The impetus for including both the Southern California and coastal CVP and SWP service areas within the PEIR (i.e., as the "SoCal/coastal CVP/SWP service areas") was to ensure that potential effects of the program on water deliveries outside the Extended SPA and Sacramento and San Joaquin Valley watersheds were evaluated in the PEIR.

The PEIR analysis did not find any significant adverse effects on water supply resulting from the proposed program.

DWR believes that the approach of focusing the CVFPP on flood management issues is consistent with the Legislature's intent as expressed

in the Central Valley Flood Protection Act of 2008, and that including elements that provide a greater focus on water supply is not necessary.

For a more detailed discussion of comments relating to potential future expansions of upstream reservoirs, see Master Response 10.

In developing the CVFPP and formulating the SSIA, DWR considered various forms of storage for flood management, including operational changes to existing reservoirs with flood storage, new or expanded flood storage in reservoirs, and storage in floodplains. Specifically, one of the preliminary approaches—Enhance Flood System Capacity—included enlarging the flood storage allocation of several multipurpose reservoirs to improve management of flood risks on lands protected by the SPFC. This evaluation found potential benefits from and opportunities for reservoir flood storage and operational changes, such as improving flexibility in managing hydrologic changes (such as climate change) and potentially offsetting the hydraulic effects of certain system improvements on downstream reaches. At the same time, these analyses addressed both the physical limitations of these opportunities and the potential negative effects of increasing flood-storage allocations on water supply and other beneficial uses. The analyses of reservoir storage and flood operations that were conducted in support of the 2012 CVFPP are described in Attachment 8B in Appendix A, “Central Valley Flood Protection Plan.”

Storage elements ultimately retained in the SSIA are based on preliminary systemwide analyses conducted for the 2012 CVFPP, legislative direction for the CVFPP, and the findings of prior and ongoing studies. Among those studies are ongoing surface storage investigations and prior local, State, and federal studies such as the Shasta Lake Water Resources Investigation, North-of-the-Delta Offstream Storage (Sites Reservoir), In-Delta Storage Program, Los Vaqueros Reservoir Expansion, and Upper San Joaquin River Basin Storage Investigation (Temperance Flat Reservoir). However, no new site-specific investigations of surface storage were included in the systemwide analyses conducted to support the 2012 CVFPP.

In the 2012 CVFPP, the SSIA includes coordinated reservoir operations aimed at making the most efficient and effective use of current flood storage allocations in existing reservoirs, and implementation of the authorized Folsom Dam Raise (see Section 3.5.4 of the CVFPP). These SSIA storage elements appropriately reflect the conceptual level of detail and systemwide focus of the 2012 CVFPP, without precluding future consideration of new or expanded storage by the State or local agencies. At this time, the SSIA does not include new reservoirs or expansion of storage (other than at Folsom Dam) solely for the purpose of flood management; however, DWR will continue to consider flood management in the context



of, and as an objective of, its ongoing multi-benefit surface storage investigations and systemwide reoperation studies. Should these State investigations or other related efforts by local or federal agencies identify flood management as a component of a feasible reservoir storage project, this may be reflected in future updates to the CVFPP.

### **Ongoing Surface Storage Investigations**

Ongoing investigations are being conducted to determine the feasibility of surface storage and consider potential environmental effects. The analyses included in these surface-storage studies are more detailed than those conducted at a systemwide scale for the 2012 CVFPP. Consequently, these studies are developing more comprehensive information about the potential costs and benefits of site-specific increases in flood storage.

Some specific examples of ongoing multipurpose surface-storage investigations and related investigations that are examining the feasibility of adding new flood storage are listed below.

- *Upper San Joaquin River Basin Storage Investigation*—An evaluation of increasing storage in Millerton Reservoir or building a new multipurpose reservoir upstream, such as Temperance Flat Reservoir. The current formulation includes an additional storage allocation for flood management.
- *North-of-Delta Offstream Storage Investigation*—An evaluation of building a new offstream reservoir in the Sacramento River Basin west of the Sacramento River, also known as Sites Reservoir. Flood management benefits may be possible by coordinating storage operations with other multipurpose reservoirs, such as Shasta Dam and Reservoir.
- *Shasta Lake Water Resources Investigation*—An evaluation of raising Shasta Dam for multiple purposes. The formulation considered an additional allocation for flood storage as well as operational changes, but these options are not being carried forward.
- *DWR System Reoperation Program*—An evaluation of pursuing reservoir reoperation strategies at a systemwide scale to improve water supply reliability, reduce flood hazards, and protect and restore the ecosystem.

### **Shasta Dam and Reservoir**

Analyses for the 2012 CVFPP and for previous and ongoing studies (such as Reclamation’s Shasta Lake Water Resources Investigation), have found that increasing flood storage in Shasta Dam and Reservoir would not

significantly reduce flood risks for lands protected by the SPFC, for several reasons. Shasta Reservoir has a sizeable flood-storage allocation capable of managing a 1 percent chance (100-year) flood from its tributary watershed; consequently, the dam and reservoir are already regulating floodflows adequately for all but the most severe and infrequent floods. More importantly, other uncontrolled tributaries (those not regulated by reservoirs) downstream from Shasta Dam, such as Cottonwood Creek, contribute peak floodflows along reaches of the Sacramento River with SPFC levees that exceed the flood releases from Shasta Dam. Additional storage in Shasta Dam and Reservoir would not address the significant floodflows produced by these unregulated tributaries. Previous studies by USACE and others have indicated that a new flood management reservoir on Cottonwood Creek would conflict with goals for watershed management and environmental restoration in the Cottonwood Creek watershed, and would have significant environmental effects. This example indicates that increased storage capacity may not always result in meaningful flood-management benefits, and that increased storage may not be feasible in locations where it is most needed.

During the early and mid 20th century, most of the major rivers and tributaries draining into the Central Valley were dammed, providing both intentional and incidental flood management benefits. The aggregate benefit of these reservoirs to flood management has been substantial, and has contributed to the success of the existing flood system in reducing or avoiding damage from major flood events during the past century. However, California's topography and geology limit opportunities for reservoir construction, and most of the feasible locations have already been developed with the existing major dams (e.g., Shasta, Oroville, Folsom). The remaining opportunities are much more limited.

Specifically, unlike the situation that existed at the beginning of the 20th century, only a few remaining dam sites, spread throughout the Central Valley watersheds, offer the potential to provide large volumes of flood storage capacity. Other than for a few specifics, such as raising Shasta Dam or constructing Sites Reservoir, commenters on this topic did not provide a more detailed proposal or recommendation for implementing upstream storage projects. In particular, commenters provided no specific information regarding the feasibility of using an upstream-reservoir approach to meet the requirements of SB 5.

DWR recognizes the importance of developing additional water storage capacity in California to support an increasing population, to help compensate for the anticipated loss of snowpack storage as a result of climate change, and to maintain the important role of Central Valley agriculture for the nation and the world. For these reasons, multipurpose

reservoir projects will likely continue to be proposed and, if successful, may help to meet needs for flood storage capacity.

However, these proposals face daunting challenges. Despite their benefits, new or expanded reservoirs generally face considerable opposition given their environmental effects, costs, perceived risks, and other factors. Also, environmental laws established mostly in the 1970s now apply to these proposals. Among these laws is the requirement under Section 404 of the CWA that any project affecting waters of the United States can be approved only if it is demonstrated to be the least environmentally damaging practicable alternative. Many other laws also present permitting challenges.

It is significant that no new major onstream reservoir has been constructed in the Central Valley watershed since New Melones Dam was completed in 1978. The Auburn Dam project, which commenced construction in 1968, was never completed because of several factors, including its cost, geologic problems with the site, and potential harm to recreational and ecological values. Recently, successful projects have consisted largely of projects to provide offstream storage (such as Los Vaqueros Reservoir), which can provide only limited flood control benefits outside their watersheds given the need for pumping, and projects to increase the capacity of existing reservoirs (which by their nature are only incremental).

Moreover, to serve as a substitute for floodway conveyance and storage, upstream reservoir capacity would have to be developed throughout the Central Valley watershed. The extreme weather events (i.e., atmospheric rivers) that create the greatest risk of a severe flood are often localized. Floodplain storage protects against floodwaters originating from all upstream areas, but by definition, upstream reservoirs can store only the floodwaters that originate from a particular area or tributary watershed. For example, an increase in the capacity of Shasta Lake would provide little or no benefit in the event of a major atmospheric rivers event focused on the central or southern Sierra Nevada. There is simply no reasonable scenario under which an array of new reservoir projects spread throughout the Central Valley watershed would be feasible and could serve as an effective substitute for floodplain storage. Suitable and feasible remaining sites do not exist, the costs would likely be prohibitive and the opposition substantial, and environmental permits would be difficult if not impossible to obtain. It would be both speculative and imprudent for the CVFPP to rely on such an approach. None of the comments on the topic have addressed, much less rebutted, the substantial evidence that such an alternative could not feasibly meet the objectives of the CVFPP as directed by SB 5.

Failing to reserve adequate floodway conveyance and storage capacity now would leave future generations with limited options for addressing their flood protection needs. The current generation has benefited from the existing bypass system, and expanding that system would benefit both current and future residents.

It is recognized that in certain cases and to some degree, upstream floodway conveyance and storage could reduce the need for (or scale of) some types of downstream flood management actions associated with the SPFC. However, opportunities to reduce flood risks on lands protected by the SPFC by increasing floodway conveyance and storage are limited, and depend on a variety of factors:

- The location of a reservoir (or multiple reservoirs) with respect to the downstream actions or target area is important. Multipurpose reservoirs are present along many major tributaries to the Sacramento and San Joaquin rivers, but the hydrology (magnitude of rainfall and timing of peak flows from a watershed) and the operations of these reservoirs are very complex. Floodflows in downstream reaches of mainstem rivers are often influenced by the operation of multiple reservoirs, and peak flood stages may result from a combination of hydrologic events on different tributaries. Consequently, increasing flood storage in one reservoir may not reduce peak flood stage along a mainstem river reach because of the operations of other reservoirs, contributions from unregulated streams, or hydrology of the various tributary watersheds.
- The volume of floodway conveyance and storage that could be achieved is related to the size of the watershed and floodflows it generates, which can limit the effectiveness of expanding reservoirs or constructing new reservoirs. Expanding a reservoir is typically most effective when the existing reservoir has a small flood storage allocation compared with its tributary watershed. Similarly, it may not be effective to construct or expand a reservoir that controls a relatively small watershed.
- Opportunities to expand a reservoir are typically limited by the existing dam's location, size, and type of construction (concrete versus earthen, for example). A reservoir expansion sufficient to achieve the desired flood risk reduction benefits downstream may not be physically possible at all locations.
- The cost and potential impacts of enlarging a reservoir or constructing a new reservoir vary substantially from location to location. The CVFPP is a conceptual plan, and the PEIR is a program-level document; the site-specific analyses that would be needed to assess feasibility were

not conducted as part of the CVFPP or PEIR, and will occur at the project level. See Master Response 23.

- Reservoir ownership varies, and studies of specific opportunities to expand reservoirs must be conducted in partnership with owners and operators.

The above factors indicate that a feasible and cost-effective surface-storage project could be developed only under specific circumstances, and that even if it is feasible, additional surface storage may not provide meaningful flood management benefits. These factors, combined with the conceptual systemwide focus of the 2012 CVFPP, precluded DWR from identifying specific reservoir storage elements to include in the SSIA at this time. These factors limited the ability to formulate an approach/alternative to include in the PEIR that focused primarily on increasing flood storage. Further, increasing storage alone would not achieve many of the CVFPP goals or fulfill legislative intent, such as improving ecosystem functions within the flood management system or achieving an urban level of flood protection for all urban areas.

Studies showed that combining bypass expansion, regional levee improvements, and coordinated operations in the SSIA did not result in systemwide hydraulic impacts that would be substantial enough to require including additional surface storage as a hydraulic mitigation measure. However, the plan does not preclude future consideration of new or additional flood storage by State, federal, or local agencies in the regional flood management planning or two basin feasibility studies, or as independent projects. (See Section 3.5.4 in Appendix A, “Central Valley Flood Protection Plan.”)

As stated in Section 15126.1(a) of the CEQA Guidelines:

An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation.

The DPEIR currently evaluates a reasonable range of alternatives (seven are considered and five receive full analysis) (see Chapter 5.0, “Alternatives”). The alternatives analysis is sufficient to “foster informed decision making and public participation.” As demonstrated by the

discussion above, potential development of upstream storage facilities does not offer a feasible alternative to floodplain storage. As a result, CEQA does not require that such an alternative be included. See Master Response 24.

#### ***G\_CFBF2-02***

As stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)).

The SSIA includes the supporting goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time. Under the SSIA, ecosystem restoration opportunities are integral parts of flood system improvements, including projects for urban areas, small communities, and rural-agricultural areas. Integrating ecosystem restoration into these flood protection projects will focus on preserving important SRA habitat along riverbanks and help restore the regional continuity/connectivity of such habitats. In addition, SSIA ecosystem restoration activities may include improving fish passage, increasing the extent of inundated floodplain habitat, creating opportunities to allow river meandering and other geomorphic processes, or other measures that may be identified during post-adoption activities. Potential effects on flood management and channel capacity will be considered during implementation of any ecosystem restoration actions. Post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, State and USACE permitting) will allow for detailed development and review of the conceptual ecosystem restoration targets described in the CVFPP and its attached Conservation Framework.

Appendix E, “2012 Central Valley Flood Protection Plan Conservation Framework,” provides a preview of a long-term Conservation Strategy that DWR is developing to support the 2017 CVFPP Update. The Conservation Framework focuses on promoting ecosystem functions and multi-benefit projects in the context of integrated flood management for near-term implementation actions and projects. The Conservation Framework provides an overview of the floodway ecosystem conditions and trends and key conservation goals that further clarify the CVFPP’s ecosystem goal.

In addition, as stated in Master Response 9, three preliminary approaches were used to explore a range of potential physical changes to the existing flood management system and help highlight needed policies or other management actions: Achieve SPFC Design Flow Capacity, Protect High-Risk Communities, and Enhance Flood System Capacity. Evaluating these preliminary approaches provided information on their costs, benefits, and overall effectiveness. None of the three preliminary approaches were found to fully satisfy the legislative requirements and CVFPP goals in a cost-effective manner. However, the most promising elements of each were combined to formulate the State's preferred approach—the SSIA. The CVFPP and accompanying attachments provide additional details about the formulation and screening of elements included in the SSIA. For additional detail, see Master Response 9 and CVFPP Appendix E.

**G\_CFBF2-03**

See response to comment G\_CFBF2-02.

The comment does not identify examples of regulatory burdens resulting from habitat elements; therefore, the comment does not raise specific questions or information regarding the CVFPP or adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_CFBF2-04**

As stated in Master Response 2, the CVFPP is a high-level document that describes the State's vision for a sustainable flood management system in the Central Valley. The SSIA is a responsible and balanced investment approach to achieve this vision. The CVFPP and its PEIR do not permit any specific actions to move forward that would be subject to further evaluation under CEQA. The CVFPP does not provide detailed project descriptions or funding assurances, nor does it preclude any future actions that could contribute to the State's flood management goals.

The 2012 CVFPP outlines a broad range of potential physical and institutional projects and actions to reduce flood risks. Some actions identified in the SSIA can be implemented within the existing footprint of the SPFC, while others will require new lands and/or easements. Because the SSIA was developed at a conceptual or program level, it does not identify any specific project; therefore, any lands or properties that may be needed to implement the plan are unknown at this time. Initial, preliminary planning-level analyses indicate that actions outlined in the SSIA (expansion of the bypass system; new bypasses; and levee reconstruction, including levee setbacks) could expand flood system lands by as much as

40,000 acres. However, this initial estimate will be refined during follow-on studies and further analysis conducted after adoption of the CVFPP. It is anticipated that land uses within any expansions of the flood management system would be a mix of flood facilities and agricultural and environmental conservation uses; however, the exact amount and geographical distribution of these land uses will require further analyses as future specific projects are considered and evaluated.

A portion of the lands and easements needed to implement the SSIA would support improvements to urban levees, but the majority (by surface area) would support floodway expansion and repair and/or reconstruction of levees in rural areas. For preliminary planning purposes, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. However, these preliminary planning estimates will be refined during subsequent project-level analyses. The actual needs for and uses of land will vary depending on the types and locations of specific flood system improvements.

The conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified. The CVFPP states the preference to work with willing landowners for needed land acquisitions. All land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable.

In addition to expansion of the bypass system, levee reconstruction, and other elements, the SSIA includes State investments in agricultural conservation easements, which involves working with willing landowners where easements would be consistent with local land use plans. These easements would be used to preserve agriculture and prevent urban development in current agricultural areas, discouraging conversion to land uses that would increase flood risks within floodplains protected by SPFC



facilities. Agricultural conservation easements could be purchased through various DWR programs; an example is DWR's Flood Corridor Program, which focuses on nonstructural flood risk reduction integrated with protection of natural resources and agricultural lands.

The PEIR recognizes that converting lands from agricultural uses would result in potentially significant and unavoidable impacts, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA). Many commenters expressed the view that such conversions should not occur, and that including such conversions in the SSIA undervalues agriculture as a primary industry in the Central Valley that provides a range of economic, social, habitat, and other benefits. Many commenters also explained that particular lands have been in family ownership for generations, often dating back to the earliest days of statehood. DWR and the Board respect these benefits and the relationships that many individuals have to any lands that might be converted, which are anticipated to be substantial topics during any project-level public engagement processes. However, the DPEIR has adequately addressed the environmental issues at a program level and no new significant environmental topics or information were raised in the comments.

***G\_CFBF2-05***

See responses to comments CFBF2-02 and CFBF2-04.

If a place-based project would be defined and pursued as part of the proposed program, and if the CEQA lead agency would be subject to the authority of local jurisdictions, the applicable county and city policies and ordinances would be addressed in a project-level CEQA document as necessary. Planting of vegetation in the floodway may not be authorized by the Board, USACE, or other agencies if the vegetation would impede flood flows sufficiently that a rise in water surface elevation would cause a significant increase in risk to public safety.

As stated in Master Response 16, Mitigation Measure BIO-A-2a (NTMA) requires that project proponents obtain any permits applicable to the activity of removing riparian vegetation and comply with all terms and conditions of these permits. Examples of permits would be a Section 1602 streambed alteration agreement from DFG, federal ESA authorization from USFWS and/or NMFS, and authorization under the CESA from DFG. Any mitigation plantings in the floodway will not be permitted if they would result in substantial increases in flood stage elevations, or alter flows in a manner that would have a substantial adverse effect on the opposite bank.

Because the locations of future ecosystem restoration efforts conducted as part of the CVFPP are not known at this time, the issue of compatibility of

ecosystem restoration and adjacent land uses is speculative. Details regarding compatibility of habitat and adjacent land uses will be addressed as needed as plan implementation proceeds. However, there seems to be little potential for meaningful conflicts between habitat created as part of the plan and existing agricultural uses, particularly conflicts severe enough to result in incidents of inverse condemnation as implied by the commenter. Where DWR, the Board, or others create habitat, the land would be part of a specific project and owned in fee title by an appropriate agency to preserve and maintain the habitat. Where this habitat is in an expanded floodway, DWR or another appropriate agency would own the surrounding land in the floodway in fee title and land would be leased for agricultural production as appropriate. In this circumstance, the habitat would not conflict with continuing nearby agricultural operations owned by a private entity. If habitat were created on the edge of an existing or expanded floodway, typically a levee and associated maintenance easements would separate the habitat from any privately held agricultural land on the landside of the levee, minimizing the potential for conflicts between sensitive species that might occupy the habitat and agricultural operations.

***G\_CFBF2-06***

As stated in Master Response 3, the State supports efforts to reform FEMA's NFIP to more equitably reflect corresponding flood risks, including establishing a flood zone for agriculturally based communities to allow replacement of existing structures or reinvestment development in the floodplain. The State also supports identifying a special, lower-premium rate structure that reflects actual flood risks for agricultural buildings in rural-agricultural areas located in Special Flood Hazard Areas. The State will work with local flood management interests to pursue reform of the FEMA NFIP.

***G\_CFBF2-07***

See response to comment CFBF2-02. In addition, as stated in Master Response 3, the SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises. Implementing the SSIA would increase the percentage of the population receiving at least 100-year (1 percent annual chance) flood protection from the current 21 percent to more than 90 percent (CVFPP, page 3-40). The remaining 10 percent of the population would receive benefits through residual risk management actions. Based on initial planning-level cost estimates developed to evaluate elements of various scenarios considered under the 2012 CVFPP, more than 20 percent of total SSIA investments would support rural-agricultural and small community

improvements, and residual risk management. In addition, systemwide elements (which account for almost 40 percent of total SSIA investments) are anticipated to provide flood stage reduction benefits to many of the areas in the system, including small communities and rural-agricultural areas.

In addition, the PEIR prepared for the CVFPP includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) on pages 3.3-34 and 3.3-35 of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed.

The State supports the continued viability of small communities to preserve cultural and historical continuity and provide important social, economic, and public services to rural populations and agricultural enterprises. The SSIA describes State investment priorities in small community flood protection while avoiding the inducement of imprudent growth within SPFC floodplains. Under the SSIA, many small communities would receive increased flood protection benefits as a result of system improvements focused on protecting nearby urban areas. For example, levee improvements may be constructed upstream from an urban area to prevent a scenario in which floodwaters from an upstream levee breach would flow down gradient into the urban area. The upstream levee improvement that may extend into rural locations would therefore also reduce flood risks for the rural area immediately adjacent to the improved levee segment. Conditions in small communities would also be evaluated on a case-by-case basis to identify appropriate State investments in additional structural and/or nonstructural actions (e.g., levees, flood walls, floodproofing, or relocations).

The SSIA also outlines various State investments that would contribute to improved flood-risk management in rural-agricultural areas outside small communities. These actions are aimed at promoting sustainable rural-agricultural economies without inducing imprudent urban development or increasing flood risks within lands protected by the SPFC. No target minimum level of flood protection has been established for prioritizing State investments in rural-agricultural areas (see CWC Section 9603).

However, the SSIA proposes (1) projects that maintain levee crown elevations for rural SPFC levees and provide all-weather access roads for inspection and floodfighting; (2) economically feasible projects that resolve known SPFC performance problems, in conjunction with development of criteria for rural levee repairs; (3) system elements (e.g., bypass expansion) that lower peak flood stages within some rural channels; and (4) actions to manage residual flood risks.

In addition, as stated in Master Response 4, State law (SB 5) requires an urban level of flood protection for urban and urbanizing areas within the Sacramento–San Joaquin Valley so that these areas will withstand a 1-in-200-year flood event (CGC Sections 65865.5, 65962, and 66474.5). Under the terms of SB 5, adoption of the 2012 CVFPP by the Board would trigger the schedule of compliance actions required for cities and counties to make findings related to an urban level of flood protection.

However, the CVFPP does not create any new requirements or assurances for levels of flood protection in the Central Valley; the local findings requirements regarding the required levels of protection were established by the State Legislature with the passage of SB 5. Similarly, the plan does not change existing State requirements related to new development in nonurbanized areas, including small communities, which must continue to meet the national FEMA standard of flood protection (per CGC Sections 65865.5, 65962, and 66474.5). This national standard corresponds to the minimum level of flood protection (100-year flood) required for participation in the NFIP, and is consistent with the existing Building Code. The Central Valley Flood Protection Act of 2008 further clarifies that the CVFPP is a descriptive document, and neither the development nor the adoption of the CVFPP constitutes a commitment by the State to provide any particular level of flood protection (CWC Sections 9603(a) and 9603(b)).

The Central Valley Flood Protection Act of 2008 establishes legislative requirements for the CVFPP. For example, the legislation directs DWR to consider structural and nonstructural methods for providing an urban level of flood protection (200-year or 0.5 percent chance) to current urban areas (CWC Sections 9614(i) and 9616(a)(6)), and encourages wise use of floodplains through a better connection between State flood protection decisions and local land use decisions (CWC Section 9616(a)(5)). The SSIA proposes flood protection investments for rural-agricultural areas, small communities, and urban areas consistent with legislative direction and commensurate with flood risk to people and property.

The SSIA identifies minimum flood protection targets when State investments are made to protect public safety in urban areas and small

communities (protection from 200- and 100-year flood events, respectively). However, the plan acknowledges that State investments alone cannot achieve these targets in all communities without leveraging federal and local funds, and encourages higher levels of flood protection whenever feasible. The SSIA also outlines various State investments that would contribute to improved flood-risk management in rural-agricultural areas, and that are aimed at promoting sustainable rural-agricultural economies without inducing imprudent urban development in floodplains. The SSIA does not target a minimum level of flood protection for State investments in rural-agricultural areas outside of the small communities because conditions and local interests differ from one area to another, and additional regional planning efforts are needed to formulate solutions that meet community needs and State investment priorities. However, the SSIA includes various options for addressing flood risks in rural-agricultural areas, including the following:

- Projects to maintain levee crown elevations for existing rural SPFC levees and provide all-weather access roads for inspection and floodfighting
- Economically feasible projects to resolve known SPFC performance problems, in conjunction with development of criteria for rural levee repairs
- System elements (such as new and expanded bypasses) that would lower water surface elevations within some rural and urban channels

All areas would benefit from State investments in the SSIA to improve residual risk management, such as enhanced flood emergency preparedness, response, and recovery.

In addition, as stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)).

The SSIA includes the supporting goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time. Under the SSIA, ecosystem restoration opportunities are integral parts of flood system improvements, including projects for urban areas, small communities, and

rural-agricultural areas. Integrating ecosystem restoration into these flood protection projects will focus on preserving important SRA habitat along riverbanks and help restore the regional continuity/connectivity of such habitats. In addition, SSIA ecosystem restoration activities may include improving fish passage, increasing the extent of inundated floodplain habitat, creating opportunities to allow river meandering and other geomorphic processes, or other measures that may be identified during post-adoption activities. Potential effects on flood management and channel capacity will be considered during implementation of any ecosystem restoration actions. Post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, State and USACE permitting) will allow for detailed development and review of the conceptual ecosystem restoration targets described in the CVFPP and its attached Conservation Framework.

Appendix E, “2012 Central Valley Flood Protection Plan Conservation Framework,” provides a preview of a long-term Conservation Strategy that DWR is developing to support the 2017 CVFPP Update. The Conservation Framework focuses on promoting ecosystem functions and multi-benefit projects in the context of integrated flood management for near-term implementation actions and projects. The Conservation Framework provides an overview of the floodway ecosystem conditions and trends and key conservation goals that further clarify the CVFPP’s ecosystem goal.

### ***G\_CFBF2-08***

As stated in Master Response 3, the SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises. Implementing the SSIA would increase the percentage of the population receiving at least 100-year (1 percent annual chance) flood protection from the current 21 percent to more than 90 percent (CVFPP, page 3-40). The remaining 10 percent of the population would receive benefits through residual risk management actions. Based on initial planning-level cost estimates developed to evaluate elements of various scenarios considered under the 2012 CVFPP, more than 20 percent of total SSIA investments would support rural-agricultural and small community improvements, and residual risk management. In addition, systemwide elements (which account for almost 40 percent of total SSIA investments) are anticipated to provide flood stage reduction benefits to many of the areas in the system, including small communities and rural-agricultural areas.

In addition, the PEIR prepared for the CVFPP includes mitigation measures that further protect agricultural resources, or minimize adverse effects on

agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) on pages 3.3-34 and 3.3-35 of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed.

The State supports the continued viability of small communities to preserve cultural and historical continuity and provide important social, economic, and public services to rural populations and agricultural enterprises. The SSIA describes State investment priorities in small community flood protection while avoiding the inducement of imprudent growth within SPFC floodplains. Under the SSIA, many small communities would receive increased flood protection benefits as a result of system improvements focused on protecting nearby urban areas. For example, levee improvements may be constructed upstream from an urban area to prevent a scenario in which floodwaters from an upstream levee breach would flow down gradient into the urban area. The upstream levee improvement that may extend into rural locations would therefore also reduce flood risks for the rural area immediately adjacent to the improved levee segment. Conditions in small communities would also be evaluated on a case-by-case basis to identify appropriate State investments in additional structural and/or nonstructural actions (e.g., levees, flood walls, floodproofing, or relocations).

The SSIA also outlines various State investments that would contribute to improved flood-risk management in rural-agricultural areas outside small communities. These actions are aimed at promoting sustainable rural-agricultural economies without inducing imprudent urban development or increasing flood risks within lands protected by the SPFC. No target minimum level of flood protection has been established for prioritizing State investments in rural-agricultural areas (see CWC Section 9603). However, the SSIA proposes (1) projects that maintain levee crown elevations for rural SPFC levees and provide all-weather access roads for inspection and floodfighting; (2) economically feasible projects that resolve known SPFC performance problems, in conjunction with development of criteria for rural levee repairs; (3) system elements (e.g., bypass expansion) that lower peak flood stages within some rural channels; and (4) actions to manage residual flood risks.

All areas protected by the SPFC would benefit from State investments included in the SSIA to improve residual risk management, such as enhanced flood emergency preparedness, response, and recovery. The SSIA also proposes State investments to preserve agriculture and discourage urban development in rural floodplains (e.g., purchasing agricultural easements from willing landowners, when consistent with local land use planning). In addition, the SSIA proposes FEMA flood insurance reforms to support the sustainability of rural-agricultural enterprises.

The State supports efforts to reform FEMA's NFIP to more equitably reflect corresponding flood risks, including establishing a flood zone for agriculturally based communities to allow replacement of existing structures or reinvestment development in the floodplain. The State also supports identifying a special, lower-premium rate structure that reflects actual flood risks for agricultural buildings in rural-agricultural areas located in Special Flood Hazard Areas. The State will work with local flood management interests to pursue reform of the FEMA NFIP.

The State recognizes potential regional differences in the capacity to pay for flood system improvements and O&M. The CVFPP proposes working with rural interests to develop appropriate criteria for rural levee repairs to cost-effectively address known problems (see CVFPP Sections 3.4.1 and 4.1.4). Further, the plan proposes reviewing O&M roles and responsibilities for SPFC facilities and forming regional maintenance authorities, as appropriate, in the interest of improving maintenance efficiency and more equitably distributing system maintenance costs to beneficiaries. For example, DWR has developed cost-sharing guidelines to promote multiobjective projects and to provide additional financial support for economically disadvantaged areas ([http://www.water.ca.gov/floodsafe/docs/Cost\\_Sharing\\_Formula\\_12-29-10\\_Final.pdf](http://www.water.ca.gov/floodsafe/docs/Cost_Sharing_Formula_12-29-10_Final.pdf)).

The specific text change has been considered and is noted; however, no change to the CVFPP text was made.

#### **G\_CFBF2-09**

As stated in Master Response 13, a multiphase public engagement planning process informed development of the 2012 CVFPP and provided many different venues for communicating and engaging with a broad range of partners and interested parties. This extensive public engagement process for plan development, which began in January 2009, involved about 450 people representing public agencies, businesses, interest-based organizations, and members of the public. The process included nearly 300 meetings and more than 40 publications, in addition to development of a public Web site and webinars. A full list of participants and forms of engagement in plan development are available in Attachment 5,



“Engagement Record,” in Appendix A, “Central Valley Flood Protection Plan.” The participants in the engagement process assisted DWR in identifying problems, developing CVFPP goals, identifying the range of management actions to consider in the CVFPP, and reviewing and commenting on the draft content of the CVFPP.

**Engagement Specifics:**

Phase 1 of the public engagement planning process focused on identifying problems and needs and crafting specific goals for the CVFPP. A variety of regional and topic-based work groups formed during this phase. Phase 2 focused on identifying individual actions that could be taken to achieve the CVFPP goals, and engaged stakeholders through continued regional and topic-based work groups and public workshops.

After Phase 2, stakeholders indicated that they preferred to review more developed materials and information before continuing with intense working meetings. With that understanding, DWR focused its efforts on content development (considering previously provided input and ongoing analyses) and developed a cohesive working draft document for stakeholder review in fall 2011. Outreach efforts included e-mail communications and updates, workshops, webinar briefings, and meetings with individuals and agencies. Work group members were also given an opportunity to review and comment on a working draft of the CVFPP. However, with a commitment to complete a public draft CVFPP within the legislated time frame, the degree of engagement provided in Phases 1 and 2 was not feasible for Phases 3 and 4.

The Board provided various opportunities for members of the public and agencies to comment on the public draft CVFPP, released in December 2011. Hearings were held in 2012 on April 5 (Sacramento), April 6 (Marysville), April 9 (Stockton), and April 11 (Woodland), and public comments were heard and discussed at both regular and special Board meetings. DWR also accepted comments on the DPEIR, which was released in early March 2012. More information on the Board’s process for public review and plan adoption can be found on its Web site, <http://www.cvpfb.ca.gov>.

**G\_CFBF2-10**

See responses to comments G\_CFBF2-02 and G\_CFBF2-09. In addition, as stated in Master Response 14, regional flood management planning, to be conducted in each of nine regions identified in the 2012 CVFPP, is an important next step in identifying specific improvements to rural-agricultural areas, small communities, and urban areas consistent with the SSIA. Upon CVFPP adoption, DWR will work closely with local entities to collect on-the-ground information regarding flood risks and needs,

identify potential local and regional improvement projects, assess the performance and feasibility of these projects, and develop proposals that reflect the priorities of local entities in reducing flood risks. Each regional plan will present an assessment of proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. DWR intends to provide guidance as well as technical and financial assistance to local agencies to prepare the regional flood management plans, subject to availability of funds.

Regional flood management plans are anticipated to:

- Assess regional flood risks and management actions (projects) to reduce these risks
- Discuss regional priorities, including criteria used to prioritize individual projects
- Describe specific projects, including their potential costs, regional and systemwide benefits, and beneficiaries
- Provide a financial plan describing how the proposed projects would be funded, including cost sharing and financing for local shares
- Describe regional governance of flood management

Development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts. Information and outcomes from the regional planning process will inform the State-led basin-wide feasibility studies, preparation of a financing plan for the CVFPP, and the first update of the CVFPP (scheduled for completion by 2017). This regional effort is scheduled to be launched publicly in June 2012 and is anticipated to continue through 2013.

DWR will engage regional flood planning partners to develop and implement communication strategies with broad interest groups to brief them on flood management planning in their regions. Regional implementing and operating agencies, land use agencies, and interest groups will be invited to participate in the planning process. Each regional planning process will seek input, as appropriate, from agricultural interests, environmental interests, permitting agencies/resource agencies, local emergency responders, tribes, and other stakeholders. DWR anticipates that a regional flood working group will be formed in each region.

**G\_CFBF2-11**

See response to comment G\_CFBF2-09. In addition, as stated in Master Response 9, the SSIA was formulated by assembling the most promising, affordable, and timely elements of the three preliminary approaches to best meet legislative requirements and identified CVFPP goals. The SSIA reflects a balanced and fiscally responsible approach, which will be developed further as DWR completes more detailed studies and designs for site-specific capital improvements and develops other, systemwide flood improvement projects. The Central Valley Flood Protection Act of 2008 (SB 5) requires a systemwide approach for developing the CVFPP (CWC Section 9603) and requires inclusion of multiple benefits, where feasible (CWC Section 9616). Not all potential SSIA benefits have been detailed or quantified (e.g., avoided damage to infrastructure and/or life loss, ecosystem restoration), and the planning-level cost estimates remain preliminary; therefore, it is inappropriate to analyze the benefit-cost ratio using information contained in the high-level 2012 CVFPP. During post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, and development of a financing plan for the CVFPP), DWR will refine the physical elements of the CVFPP and confirm their feasibility, including the costs and benefits of site-specific improvements.

The SPFC must contend with a lack of stable funding and with concerns like deferred maintenance, changes to regulations and societal priorities, dated construction techniques, and imprudent development in deep floodplains, leaving almost a million people at risk. To address these challenges, and to meet legislative direction for a systemwide approach that focuses on public safety and promotes multi-benefit projects, DWR formulated the SSIA, with a preliminary cost estimated between \$14 billion and \$17 billion. The high cost of the SSIA reflects the costly nature of providing flood protection in the Central Valley's deep floodplains and the current conditions of the SPFC facilities, as described in the *Flood Control System Status Report* (DWR 2011).

Specific project features ultimately implemented for the SSIA will depend on a host of factors. These factors include the results of detailed project feasibility studies; designs and cost estimates; environmental benefits and impacts; interaction with other local projects and system improvements; participation by local, State, and federal agencies in project implementation; and changing physical, institutional, and economic conditions. Costs presented in the 2012 CVFPP are preliminary planning-level estimates. The actual costs of these elements will depend on the specific projects that are justified by feasibility studies, project scopes, implementation times, future economic and contractor-bidding conditions,

and many other factors. Funding sources for SSIA projects will vary according to factors such as the type of project or program, beneficiaries, availability of funds, and project or program urgency. Cost-sharing among State, federal, and local agencies may also change depending on project objectives and agency interests. Post-adoption activities (regional flood management planning, development of basin-wide feasibility studies, and development of a financing plan for the CVFPP) will further develop and refine additional project-specific details on cost, feasibility, funding, cost sharing, and local capacity to pay.

Currently available bond funding is insufficient to fully implement the recommended SSIA as a whole. After adoption of the CVFPP in 2012, DWR will prepare a framework for financing projects at a regional level. DWR will use the information gathered during preparation of the framework to prepare the financing plan for the CVFPP that will guide investment in flood-risk management in the Central Valley during the next 20 years (CWC Section 9616(a)(13)). The financing plan will be available in 2013, after adoption of the 2012 CVFPP. The financing plan is critical to implementation, given the uncertainty regarding State, federal, and local agencies' budgets and cost-sharing capabilities. The financing plan may include legislative actions to establish reliable funding for continued implementation of the SSIA in its totality to benefit the entire Central Valley and state of California.

In addition, as stated in Master Response 14, the 2012 CVFPP describes the State's vision for a sustainable flood management system in the Central Valley that provides a high degree of public safety, promotes long-term economic stability, and supports restoration of compatible riverine and floodplain ecosystems. The SSIA prioritizes State investments and other activities to contribute to achieving this vision on a systemwide scale, recognizing current funding limitations.

The SSIA is a conceptual plan for flood system improvements, and additional post-adoption work is needed to refine its individual elements. Anticipated post-adoption activities include regional flood management planning, development of basin-wide feasibility studies and the CVFPP Financing Plan, completion of project-level proposals and environmental compliance, development of the Conservation Strategy, and State and USACE permitting.

Some elements of the SSIA have already been implemented (through the Early Implementation Projects Program since 2007, for example). Others may be accomplished before the first update of the CVFPP in 2017, and many will require additional time to fully develop and implement. Ongoing and new planning studies, engineering, feasibility studies, environmental

review, designs, funding, and partnering are required to better define, and incrementally fund and implement, elements of the SSIA during the next 20–25 years.

DWR and the Board are the State lead agencies for implementing the CVFPP and preparing the 5-year CVFPP updates. CVFPP consistency is not a requirement of SB 5, and DWR and the Board retain flexibility in future activities; however, the State intends for all major flood management programs and projects in the Central Valley to be planned and implemented in a manner generally consistent with the vision, goals, and provisions of the CVFPP. DWR will also work closely with USACE and the Board to develop the federal *Central Valley Integrated Flood Management Study* and State basin-wide feasibility studies. In addition, the State is partnering with USACE on several regional feasibility and post authorization scope-change investigations aimed at modifying the State-federal flood management system.

The Board has review and permitting authority under the California Water Code and CCR Title 23 for any project, including those resulting from the CVFPP, that may encroach upon, improve, alter, or affect adopted plans of flood control (including the State-federal flood management systems, regulated streams, and designated floodways under the Board's jurisdiction).

Regional flood management planning, to be conducted in each of nine regions identified in the 2012 CVFPP, is an important next step in identifying specific improvements to rural-agricultural areas, small communities, and urban areas consistent with the SSIA. Upon CVFPP adoption, DWR will work closely with local entities to collect on-the-ground information regarding flood risks and needs, identify potential local and regional improvement projects, assess the performance and feasibility of these projects, and develop proposals that reflect the priorities of local entities in reducing flood risks. Each regional plan will present an assessment of proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. DWR intends to provide guidance as well as technical and financial assistance to local agencies to prepare the regional flood management plans, subject to availability of funds.

Regional flood management plans are anticipated to:

- Assess regional flood risks and management actions (projects) to reduce these risks

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- Discuss regional priorities, including criteria used to prioritize individual projects
- Describe specific projects, including their potential costs, regional and systemwide benefits, and beneficiaries
- Provide a financial plan describing how the proposed projects would be funded, including cost sharing and financing for local shares
- Describe regional governance of flood management

For additional detail, see Master Responses 9 and 14. The State has a strong interest in coordinating and implementing integrated projects that achieve multiple benefits. Effective integration across planning efforts means that all programs and projects, when implemented, work together to achieve key goals in a cost-effective manner; are sequenced and prioritized appropriately; and do not adversely affect or interfere with intended benefits. Although effectively integrating planning across programs while considering multiple benefits can be challenging, doing so can also provide opportunities to share knowledge and identify mutually beneficial solutions that might not have been considered otherwise, thus minimizing duplication and reducing costs.

DWR will continue to coordinate with other flood management and ecosystem enhancement efforts during implementation of the CVFPP. A few key examples include the Delta Stewardship Council's Delta Plan, the San Joaquin River Restoration Program, and the BDCP. Furthermore, the Central Valley Flood Protection Act of 2008 (SB 5) requires DWR to prepare a financing plan for the CVFPP after plan adoption. DWR recognizes that funding provided by Propositions 1E and 84 will not be sufficient to realize all of the improvements to flood management in the Central Valley envisioned in the CVFPP. As part of post-adoption regional planning, DWR, in collaboration with local and regional entities, will prepare a framework for financing projects at a regional level; State-led feasibility studies will further refine system elements of the CVFPP and confirm State interests in implementing local and regional projects. Both efforts will inform preparation of the CVFPP Financing Plan, which is scheduled for completion in 2013.

***G\_CFBF2-12***

See responses to comment G\_CFBF2-09 and G\_CFBF2-10.

As stated in Master Response 14, a multiphase public engagement planning process informed development of the 2012 CVFPP and provided many different venues for communicating and engaging with a broad range of

partners and interested parties. This extensive public engagement process for plan development, which began in January 2009, involved about 450 people representing public agencies, businesses, interest-based organizations, and members of the public. The process included nearly 300 meetings and more than 40 publications, in addition to development of a public Web site and webinars. A full list of participants and forms of engagement in plan development are available in Attachment 5, “Engagement Record,” in Appendix A, “Central Valley Flood Protection Plan.” The participants in the engagement process assisted DWR in identifying problems, developing CVFPP goals, identifying the range of management actions to consider in the CVFPP, and reviewing and commenting on the draft content of the CVFPP.

Phase 1 of the public engagement planning process focused on identifying problems and needs and crafting specific goals for the CVFPP. A variety of regional and topic-based work groups formed during this phase. Phase 2 focused on identifying individual actions that could be taken to achieve the CVFPP goals, and engaged stakeholders through continued regional and topic-based work groups and public workshops.

After Phase 2, stakeholders indicated that they preferred to review more developed materials and information before continuing with intense working meetings. With that understanding, DWR focused its efforts on content development (considering previously provided input and ongoing analyses) and developed a cohesive working draft document for stakeholder review in fall 2011. Outreach efforts included e-mail communications and updates, workshops, webinar briefings, and meetings with individuals and agencies. Work group members were also given an opportunity to review and comment on a working draft of the CVFPP. However, with a commitment to complete a public draft CVFPP within the legislated time frame, the degree of engagement provided in Phases 1 and 2 was not feasible for Phases 3 and 4.

**G\_CFBF2-13**

See response to comment G\_CFBF2-02. In addition, as stated in Master Response 6, DWR recognizes the importance of proper maintenance to protect State, local, and federal investments in the flood management system. However, maintenance activities alone do not meet current needs or legislative requirements for the CVFPP (e.g., urban level of protection, systemwide approach, and providing multiple benefits). This is highlighted in the evaluation conducted for the preliminary approach called “Achieve SPFC Design Flow Capacity.”

The Achieve SPFC Design Flow Capacity preliminary approach focuses on reconstructing SPFC facilities to meet current engineering criteria without

making major changes to facility footprints or operations. To achieve the design flow capacity, reconstruction is required because the original specifications focused primarily on levee prism geometry, and current evaluations have shown them to be insufficient in passing design flows if geotechnical and other engineering conditions (e.g., underseepage) are not improved. This approach was formulated to address legislation that required DWR to consider structural actions necessary to reconstruct SPFC facilities to their design standard (CWC Section 9614(g)). It also addresses requests from stakeholders to consider reconstructing the existing flood management system in place, or without major modification to facility locations.

Based on an initial assessment, this preliminary approach is estimated to cost approximately \$19 billion to \$23 billion and take 30–35 years to implement. This approach would improve the reliability of SPFC facilities compared to existing conditions. However, in many locations, upstream levee reconstruction would increase peak flows and stages downstream because upstream levee failures would be reduced compared to existing conditions. Further, the level of protection would be highly variable throughout the system and would not be linked to the current public safety needs and legislated requirements, and to assets at risk within the floodplain. Consequently, this approach would only partially address the primary CVFPP goal of improving flood risk management.

Investments in SPFC reconstruction would initially reduce SPFC O&M costs, but long-term costs to maintain the system would remain high. Thus, this approach would only partially contribute to the goal of improving O&M. Opportunities to integrate ecosystem restoration and enhancement would be limited and would not contribute to improved ecosystem functions on a systemwide scale. There would also be few opportunities to promote multipurpose benefits including incorporating new groundwater recharge or other water-related benefits, and promoting ecosystem functions, recreation, or agricultural sustainability. Consequently, an approach focusing on maintenance, repair, and reconstruction of existing facilities would contribute in only a minor way to the supporting goals of multi-benefit projects.

Improving O&M is a supporting goal of the CVFPP. The SSIA includes elements to address and improve O&M at existing facilities as part of residual risk management. These elements include identifying and repairing after-event erosion, developing and implementing enhanced O&M programs and practices, and forming regional O&M organizations and sustained investments in flood system maintenance (management of the Sacramento River channel and levees, bank protection, and rehabilitation of flood structures).



The SSIA promotes efficient and sustainable long-term O&M practices through the following:

- Reforming and consolidating State and local agencies' roles and responsibilities for O&M
- Standardizing criteria by which maintenance practices, procedures, and inspections are performed and reported
- Implementing strategies to adequately and reliably fund routine activities and streamline permitting

Some of the proposed activities may involve legislative action, new institutional arrangements involving local maintaining agencies, modifications to existing State programs, and additional or redirected funding.

**G\_CFBF2-14**

See response to comment G\_CFBF2-11.

The comment questions the costs of the alternatives and the cost information provided in the CVFPP. The comment is in reference to the CVFPP and does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR; however, a response is provided here.

As stated in Master Response 9, the SSIA was formulated by assembling the most promising, affordable, and timely elements of the three preliminary approaches to best meet legislative requirements and identified CVFPP goals. The SSIA reflects a balanced and fiscally responsible approach, which will be developed further as DWR completes more detailed studies and designs for site-specific capital improvements and develops other, systemwide flood improvement projects. The Central Valley Flood Protection Act of 2008 (SB 5) requires a systemwide approach for developing the CVFPP (CWC Section 9603) and requires inclusion of multiple benefits, where feasible (CWC Section 9616). Not all potential SSIA benefits have been detailed or quantified (e.g., avoided damage to infrastructure and/or life loss, ecosystem restoration), and the planning-level cost estimates remain preliminary; therefore, it is inappropriate to analyze the benefit-cost ratio using information contained in the high-level 2012 CVFPP. During post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, and development of a financing plan for the CVFPP), DWR will refine the physical elements of the CVFPP and confirm their

feasibility, including the costs and benefits of site-specific improvements. Specific project features ultimately implemented for the SSIA will depend on a host of factors. These factors include the results of detailed project feasibility studies; designs and cost estimates; environmental benefits and impacts; interaction with other local projects and system improvements; participation by local, State, and federal agencies in project implementation; and changing physical, institutional, and economic conditions. Costs presented in the 2012 CVFPP are preliminary planning-level estimates. The actual costs of these elements will depend on the specific projects that are justified by feasibility studies, project scopes, implementation times, future economic and contractor-bidding conditions, and many other factors. For additional details, see Master Response 9.

**G\_CFBF2-15**

See response to comment G\_CFBF2-14. As stated in Master Response 10, in developing the CVFPP and formulating the SSIA, DWR considered various forms of storage for flood management, including operational changes to existing reservoirs with flood storage, new or expanded flood storage in reservoirs, and storage in floodplains. Specifically, one of the preliminary approaches—Enhance Flood System Capacity—included enlarging the flood storage allocation of several multipurpose reservoirs to improve management of flood risks on lands protected by the SPFC. This evaluation found potential benefits from and opportunities for reservoir flood storage and operational changes, such as improving flexibility in managing hydrologic changes (such as climate change) and potentially offsetting the hydraulic effects of certain system improvements on downstream reaches. At the same time, these analyses addressed both the physical limitations of these opportunities and the potential negative effects of increasing flood-storage allocations on water supply and other beneficial uses. The analyses of reservoir storage and flood operations that were conducted in support of the 2012 CVFPP are described in Attachment 8B in Appendix A, “Central Valley Flood Protection Plan.”

Storage elements ultimately retained in the SSIA are based on preliminary systemwide analyses conducted for the 2012 CVFPP, legislative direction for the CVFPP, and the findings of prior and ongoing studies. Among those studies are ongoing surface storage investigations and prior local, State, and federal studies such as the Shasta Lake Water Resources Investigation, North-of-the-Delta Offstream Storage (Sites Reservoir), In-Delta Storage Program, Los Vaqueros Reservoir Expansion, and Upper San Joaquin River Basin Storage Investigation (Temperance Flat Reservoir). However, no new site-specific investigations of surface storage were included in the systemwide analyses conducted to support the 2012 CVFPP.

In the 2012 CVFPP, the SSIA includes coordinated reservoir operations aimed at making the most efficient and effective use of current flood storage allocations in existing reservoirs, and implementation of the authorized Folsom Dam Raise (see Section 3.5.4 of the CVFPP). These SSIA storage elements appropriately reflect the conceptual level of detail and systemwide focus of the 2012 CVFPP, without precluding future consideration of new or expanded storage by the State or local agencies. At this time, the SSIA does not include new reservoirs or expansion of storage (other than at Folsom Dam) solely for the purpose of flood management; however, DWR will continue to consider flood management in the context of, and as an objective of, its ongoing multi-benefit surface storage investigations and systemwide reoperation studies. Should these State investigations or other related efforts by local or federal agencies identify flood management as a component of a feasible reservoir storage project, this may be reflected in future updates to the CVFPP.

DWR recognizes the importance of developing additional water storage capacity in California to support an increasing population, to help compensate for the anticipated loss of snowpack storage as a result of climate change, and to maintain the important role of Central Valley agriculture for the nation and the world. For these reasons, multipurpose reservoir projects will likely continue to be proposed and, if successful, may help to meet needs for flood storage capacity.

However, these proposals face daunting challenges. Despite their benefits, new or expanded reservoirs generally face considerable opposition given their environmental effects, costs, perceived risks, and other factors. Also, environmental laws established mostly in the 1970s now apply to these proposals. Among these laws is the requirement under Section 404 of the CWA that any project affecting waters of the United States can be approved only if it is demonstrated to be the least environmentally damaging practicable alternative. Many other laws also present permitting challenges.

It is significant that no new major onstream reservoir has been constructed in the Central Valley watershed since New Melones Dam was completed in 1978. The Auburn Dam project, which commenced construction in 1968, was never completed because of several factors, including its cost, geologic problems with the site, and potential harm to recreational and ecological values. Recently, successful projects have consisted largely of projects to provide offstream storage (such as Los Vaqueros Reservoir), which can provide only limited flood control benefits outside their watersheds given the need for pumping, and projects to increase the capacity of existing reservoirs (which by their nature are only incremental).

Moreover, to serve as a substitute for floodway conveyance and storage, upstream reservoir capacity would have to be developed throughout the Central Valley watershed. The extreme weather events (i.e., atmospheric rivers) that create the greatest risk of a severe flood are often localized. Floodplain storage protects against floodwaters originating from all upstream areas, but by definition, upstream reservoirs can store only the floodwaters that originate from a particular area or tributary watershed. For example, an increase in the capacity of Shasta Lake would provide little or no benefit in the event of a major atmospheric rivers event focused on the central or southern Sierra Nevada. There is simply no reasonable scenario under which an array of new reservoir projects spread throughout the Central Valley watershed would be feasible and could serve as an effective substitute for floodplain storage. Suitable and feasible remaining sites do not exist, the costs would likely be prohibitive and the opposition substantial, and environmental permits would be difficult if not impossible to obtain. It would be both speculative and imprudent for the CVFPP to rely on such an approach. None of the comments on the topic have addressed, much less rebutted, the substantial evidence that such an alternative could not feasibly meet the objectives of the CVFPP as directed by SB 5.

Failing to reserve adequate floodway conveyance and storage capacity now would leave future generations with limited options for addressing their flood protection needs. The current generation has benefited from the existing bypass system, and expanding that system would benefit both current and future residents.

It is recognized that in certain cases and to some degree, upstream floodway conveyance and storage could reduce the need for (or scale of) some types of downstream flood management actions associated with the SPFC. However, opportunities to reduce flood risks on lands protected by the SPFC by increasing floodway conveyance and storage are limited, and depend on a variety of factors.

A feasible, additional surface storage may not provide meaningful flood management benefits. These factors, combined with the conceptual systemwide focus of the 2012 CVFPP, precluded DWR from identifying specific reservoir storage elements to include in the SSIA at this time. These factors limited the ability to formulate an approach/alternative to include in the PEIR that focused primarily on increasing flood storage. Further, increasing storage alone would not achieve many of the CVFPP goals or fulfill legislative intent, such as improving ecosystem functions within the flood management system or achieving an urban level of flood protection for all urban areas. For additional details, see Master Response 10.

**G\_CFBF2-16**

See response to comment G\_CFBF2-11.

**G\_CFBF2-17**

See response to comment G\_CFBF2-11. In addition, as stated in Master Response 13, anticipated activities after adoption of the 2012 CVFPP include regional flood management planning, development of basin-wide feasibility studies, and completion of project-level proposals and environmental compliance. These efforts will engage local entities and stakeholders to help identify projects to meet local and regional needs for flood management, refine the conceptual system elements proposed in the adopted plan, and identify specific projects for construction.

As part of regional flood management planning, regional plans will be prepared with active participation by regional implementing, operating, and maintaining agencies; local land use agencies (counties and cities); agricultural and environmental interests; emergency responders; and tribes. This effort will collect on-the-ground information regarding flood risks and needs, identify local and regional improvement projects, assess the performance and feasibility of these projects, and develop plans that reflect the priorities of local entities in reducing flood risks in each of the nine regions identified in the CVFPP. Each plan will also assess proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. Development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts.

Two basin-wide feasibility studies will be prepared, one in the Sacramento River Basin and one in the San Joaquin River Basin, to refine the major system elements proposed in the 2012 CVFPP (such as bypass expansion and new bypasses) and assess their compatibility with prioritized local projects identified through regional flood management planning. These combinations of system element options and regional elements will form “alternatives” for further evaluation and comparison on a systemwide scale. Stakeholder engagement will be an important and complex component of the basin-wide feasibility studies. It is anticipated that work groups will form to help evaluate and refine physical options for system elements (e.g., bypass expansion and new bypasses), identify implementation challenges, and provide input into the planning process. The feasibility studies will be conducted in close coordination with USACE (and ongoing federal feasibility studies) and local implementing agencies.

The regional and basin-wide feasibility planning efforts will help identify specific improvement projects for design and environmental review. Stakeholders and the public will have additional opportunities to provide input. The draft feasibility reports and any accompanying environmental documentation will be made available to the public for review and comments.

These post-adoption activities are discussed in greater detail in Master Response 14.

***G\_CFBF2-18***

See responses to comments G\_CFBF2-02 and G\_CFBF2-11. The specific text change has been considered and is noted; however, no change to the CVFPP text was made.

***G\_CFBF2-19***

See response to comment G\_CFBF2-11.

***G\_CFBF2-20***

The specific text change has been considered and is noted; however, no change to the CVFPP text was made.

***G\_CFBF2-21***

See response to comment G\_CFBF2-02.

***G\_CFBF2-22***

See response to comment G\_CFBF2-02.

***G\_CFBF2-23***

As stated in Master Response 4, the CVFPP does not create any new requirements or assurances for levels of flood protection in the Central Valley; the local findings requirements regarding the required levels of protection were established by the State Legislature with the passage of SB 5. Similarly, the plan does not change existing State requirements related to new development in nonurbanized areas, including small communities, which must continue to meet the national FEMA standard of flood protection (per CGC Sections 65865.5, 65962, and 66474.5). This national standard corresponds to the minimum level of flood protection (100-year flood) required for participation in the NFIP, and is consistent with the existing Building Code. The Central Valley Flood Protection Act of 2008 further clarifies that the CVFPP is a descriptive document, and neither the development nor the adoption of the CVFPP constitutes a commitment by

the State to provide any particular level of flood protection (CWC Sections 9603(a) and 9603(b)).

The Central Valley Flood Protection Act of 2008 establishes legislative requirements for the CVFPP. For example, the legislation directs DWR to consider structural and nonstructural methods for providing an urban level of flood protection (200-year or 0.5 percent chance) to current urban areas (CWC Sections 9614(i) and 9616(a)(6)), and encourages wise use of floodplains through a better connection between State flood protection decisions and local land use decisions (CWC Section 9616(a)(5)). The SSIA proposes flood protection investments for rural-agricultural areas, small communities, and urban areas consistent with legislative direction and commensurate with flood risk to people and property.

The SSIA identifies minimum flood protection targets when State investments are made to protect public safety in urban areas and small communities (protection from 200- and 100-year flood events, respectively). However, the plan acknowledges that State investments alone cannot achieve these targets in all communities without leveraging federal and local funds, and encourages higher levels of flood protection whenever feasible. The SSIA also outlines various State investments that would contribute to improved flood-risk management in rural-agricultural areas, and that are aimed at promoting sustainable rural-agricultural economies without inducing imprudent urban development in floodplains. The SSIA does not target a minimum level of flood protection for State investments in rural-agricultural areas outside of the small communities because conditions and local interests differ from one area to another, and additional regional planning efforts are needed to formulate solutions that meet community needs and State investment priorities. However, the SSIA includes various options for addressing flood risks in rural-agricultural areas, including the following:

- Projects to maintain levee crown elevations for existing rural SPFC levees and provide all-weather access roads for inspection and floodfighting
- Economically feasible projects to resolve known SPFC performance problems, in conjunction with development of criteria for rural levee repairs
- System elements (such as new and expanded bypasses) that would lower water surface elevations within some rural and urban channels

All areas would benefit from State investments in the SSIA to improve residual risk management, such as enhanced flood emergency preparedness, response, and recovery.

In recognition of current funding limitations, State investments under the SSIA would be prioritized commensurate with risks to people and property and opportunities to achieve multiple benefits. Consequently, State investments would vary from region to region depending on the assets at risk (people, property, and infrastructure) and severity of flood risk (frequency and depth). However, all areas protected by the SPFC would receive flood risk management benefits from fully implementing the SSIA. Further, the State places a priority on flood management improvement projects that provide multiple benefits to support broad State interests and expand cost-sharing opportunities.

The CVFPP does not include levee design criteria for rural areas, but recognizes that the urban levee design criteria are not always practical or affordable for protecting rural areas. DWR supports future development and implementation of rural levee repair criteria in coordination with local and regional flood management agencies.

The comment requests that a particular item, “an engineering based rural level standard,” be included in the CVFPP. DWR currently is working with local maintaining agencies to draft guidelines for nonurban levee repair criteria. Suggestions may be presented during various elements of future implementation of the CVFPP, as described in Master Response 14; however, no change to the current version of the CVFPP was made.

***G\_CFBF2-24***

The feasibility, costs, and benefits of potential actions will be evaluated as part of the regional planning process identified in Master Comment 14, including the projects identified by the commenter. See responses to comments G\_CFBF2-02, G\_CFBF2-11, and G\_CFBF2-14.

***G\_CFBF2-25***

See responses to comments G\_CFBF2-08 and G\_CFBF2-23.



**G\_CFBF2-26**

See response to comment G\_CFBF2-23. As stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)).

The SSIA includes the supporting goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time. Under the SSIA, ecosystem restoration opportunities are integral parts of flood system improvements, including projects for urban areas, small communities, and rural-agricultural areas. Integrating ecosystem restoration into these flood protection projects will focus on preserving important SRA habitat along riverbanks and help restore the regional continuity/connectivity of such habitats. In addition, SSIA ecosystem restoration activities may include improving fish passage, increasing the extent of inundated floodplain habitat, creating opportunities to allow river meandering and other geomorphic processes, or other measures that may be identified during post-adoption activities. Potential effects on flood management and channel capacity will be considered during implementation of any ecosystem restoration actions. Post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, State and USACE permitting) will allow for detailed development and review of the conceptual ecosystem restoration targets described in the CVFPP and its attached Conservation Framework.

**G\_CFBF2-27**

See response to comment G\_CFBF2-23.

**G\_CFBF2-28**

See response to comment G\_CFBF2-04.

Attachment 8J, Section 4.1.2, "Agricultural Conservation Easements," in Appendix A, "Central Valley Flood Protection Plan," states that agricultural conservation easements include lands on the landward side of levees that will be preserved in current land use (primarily agriculture). This also will reduce future development in the floodplains. Although specific agricultural conservation easements (acreages) have not been

identified, the assumptions for the distribution of agricultural conservation easements are listed in Table 4-3. The cost for agricultural conservation easements is estimated to be 35 percent of the cost to purchase lands (listed in Table 4-2). Agricultural conservation easement costs estimated at 35 percent of the actual land-use costs are based on the range of agricultural easements costs from other projects in the Central Valley, identified by DWR Flood Control Projects Office and Flood Maintenance Office.

**G\_CFBF2-29**

See responses to comments G\_CFBF2-04 and G\_CFBF2-10.

**G\_CFBF2-30**

See responses to comments G\_CFBF2-04 and G\_CFBF2-28.

**G\_CFBF2-31**

The commenter is stating essentially that the CVFPP lacks additional detail, including site-specific information and data on specific bypass quantities and lands affected. This level of detail is not what the 2012 CVFPP attempts to address. As stated in Master Response 1, the CVFPP is a high-level document that describes the State's vision for a sustainable flood management system in the Central Valley. The SSIA is a responsible and balanced investment approach to achieve this vision. The CVFPP and its PEIR do not permit any specific actions to move forward that would be subject to further evaluation under CEQA. The CVFPP does not provide detailed project descriptions or funding assurances, nor does it preclude any future actions that could contribute to flood management goals.

Specific dimensions, capacities, and alignments for expanded and new flood risk reduction facilities, including bypasses, have not been determined as part of the preliminary analyses conducted for the 2012 CVFPP. The analyses contained in the 2012 CVFPP are intended to be conceptual only; they were included as a basis for a program-level analysis that would allow broad comparisons of various flood management options. Potential locations and preliminary sizes described in the plan were identified using information obtained from previous studies and through discussions with local agencies and stakeholders.

Considerable additional work will be required before projects proposed in the plan are approved and implemented. Details about the dimensions, capacities, and alignments of expanded and new bypasses, for instance, will be refined during post-adoption implementation activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and

USACE permitting. As these activities are conducted, the feasibility of proposed elements will be evaluated and opportunities for public engagement and input will become available. Elements of the CVFPP are expected to be refined and modified based on regional flood management planning efforts and the two basin-wide feasibility studies. This is especially true for larger system elements that require more studies and feasibility evaluations to better understand their costs and benefits and to reduce the level of uncertainty. All applicable project-specific environmental review will be conducted before implementation of projects stemming from the CVFPP.

The comment states that the information in the technical appendices should be readily available. As stated in Master Response 22, the Public Draft CVFPP was released, on time, on December 30, 2011. Several of the attached supporting documents, specifically the *State Plan of Flood Control Descriptive Document* (November 2010) and the *Draft Flood Control System Status Report* (December 2011), were published before the Public Draft CVFPP and informed its development. Most CVFPP attachments were released with the public draft or in early February 2012; exceptions include the “Flood Damage Analysis,” “Riverine Channel Evaluations,” “Cost Estimates,” and “Reservoir Analysis” attachments, which were released between mid-February and the publication of the DPEIR. The documents are available at <http://www.water.ca.gov/cvfmp/documents.cfm>.

For additional details, see Master Responses 1 and 14.

**G\_CFBF2-32**

See response to comment G\_CFBF2-31.

**G\_CFBF2-33**

See response to comment G\_CFBF2-31.

**G\_CFBF2-34**

See response to comment G\_CFBF2-31.

**G\_CFBF2-35**

See response to comment G\_CFBF2-31.

**G\_CFBF2-36**

See response to comment G\_CFBF2-31.

***G\_CFBF2-37***

As stated in Master Response 1, the existing bypass system in the Sacramento River Basin (including the Sutter and Yolo bypasses and associated inflow weirs) forms the central backbone of the Sacramento River Flood Control Project and redirects damaging floodflows away from the main channels of the Sacramento and Feather rivers. The considerable capacity of the bypass system (up to 490,000 cfs) also slows the movement of floods, effectively attenuating flood peaks and flows into the Delta. The existing bypass system also supports a vibrant seasonal agricultural economy and provides important habitat for multiple terrestrial and aquatic species. In the San Joaquin River Basin, the bypass system includes the Chowchilla, Eastside, and Mariposa bypasses.

The Central Valley Flood Protection Act of 2008 requires DWR to evaluate ways to "...expand the capacity of the flood protection system in the Sacramento–San Joaquin Valley to either reduce floodflows or convey flood waters away from urban areas" (CWC Section 9616(a)(2)). Bypasses have served an essential role in providing these functions.

The CVFPP's recommended approach—the SSIA—includes proposals for new bypasses and expansions as a potentially cost-effective, systemwide approach to (1) provide flood protection benefits to large areas throughout the SPFC planning area (including rural-agricultural areas, small communities, and urban areas); (2) provide opportunities to improve ecosystem functions and continuity and contribute to mitigation for proposed structural improvements, as well as mitigation for operations and maintenance of flood management facilities; and (3) provide flexibility to adapt to future change in climate and improved system resiliency.

Expansion of the Sutter, Yolo, and Sacramento bypasses were identified as examples of increasing the overall capacity of the flood management system to convey and attenuate large flood events. Peak flood stages could be reduced along the Sacramento River, and to a lesser extent, along its tributaries. Lowering flood stages throughout much of the system would benefit urban, small-community, and rural-agricultural areas alike. Constructing new bypasses, such as constructing a bypass from the upper Feather River to the Butte Basin and expanding Paradise Cut from the San Joaquin River into the south Delta, would further contribute to reducing peak flood stage along reaches of the Feather River and lower San Joaquin River.

Several factors would be considered in the design and operation of bypass improvement elements: existing land uses, hydraulic considerations, ecosystem restoration features and benefits (including conservation and

restoration of aquatic and floodplain habitats), and continued compatible agricultural land uses within the bypass.

The CVFPP is a high-level document that describes the State's vision for a sustainable flood management system in the Central Valley. The SSIA is a responsible and balanced investment approach to achieve this vision. The CVFPP and its PEIR do not permit any specific actions to move forward that would be subject to further evaluation under CEQA. The CVFPP does not provide detailed project descriptions or funding assurances, nor does it preclude any future actions that could contribute to flood management goals.

Specific dimensions, capacities, and alignments for expanded and new bypasses have not been determined as part of the preliminary analyses conducted for the 2012 CVFPP. The analyses contained in the 2012 CVFPP are intended to be conceptual only; they were included as a basis for a program-level analysis that would allow broad comparisons of various flood management options. Potential locations and preliminary sizes described in the plan were identified using information obtained from previous studies and through discussions with local agencies and stakeholders.

Considerable additional work will be required before the bypass projects proposed in the plan are approved and implemented. Details about the dimensions, capacities, and alignments of expanded and new bypasses will be refined during post-adoption implementation activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these activities are conducted, the feasibility of proposed bypass elements will be evaluated and opportunities for public engagement and input will become available.

The PEIR recognizes that converting current land uses (particularly agricultural uses) to bypass and related uses (such as habitat and recreation) would result in potentially significant and unavoidable impacts, particularly on agriculture, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA). Many commenters expressed the view that such conversions should not occur, and that including such conversions in the SSIA undervalues agriculture as a primary industry in the Central Valley that provides a range of economic, social, habitat, and other benefits. Many commenters also explained that particular lands have been in family ownership for generations, often dating back to the earliest days of statehood. DWR and the Board respect these benefits and the relationships that many individuals have to any lands that might be converted, which are

anticipated to be substantial topics during any project-level public engagement processes. However, the DPEIR has adequately addressed the environmental issues at a program level and no new significant environmental topics or information were raised in the comments.

Several commenters expressed concern regarding the potential for particular properties to be included in a bypass proposal. Concerns were also expressed that preliminary identification of conceptual bypass designs might create a “cloud” over the properties, making it difficult to manage, obtain loans for, or sell those properties. DWR and the Board wish to make clear that the conceptual designs reflected in the CVFPP do not reflect a determination regarding any specific properties, and that the potential involvement of particular properties in any future bypass project is entirely speculative at this time. Potential agricultural land conversions and the resulting effects are discussed further in Master Responses 2 and 3.

In addition, as stated in Master Response 9, three preliminary approaches were used to explore a range of potential physical changes to the existing flood management system and help highlight needed policies or other management actions: Achieve SPFC Design Flow Capacity, Protect High-Risk Communities, and Enhance Flood System Capacity. Evaluating these preliminary approaches provided information on their costs, benefits, and overall effectiveness. None of the three preliminary approaches were found to fully satisfy the legislative requirements and CVFPP goals in a cost-effective manner. However, the most promising elements of each were combined to formulate the State’s preferred approach—the SSIA. The CVFPP and accompanying attachments provide additional details about the formulation and screening of elements included in the SSIA.

The SSIA was formulated by assembling the most promising, affordable, and timely elements of the three preliminary approaches to best meet legislative requirements and identified CVFPP goals. The SSIA reflects a balanced and fiscally responsible approach, which will be developed further as DWR completes more detailed studies and designs for site-specific capital improvements and develops other, systemwide flood improvement projects. The Central Valley Flood Protection Act of 2008 (SB 5) requires a systemwide approach for developing the CVFPP (CWC Section 9603) and requires inclusion of multiple benefits, where feasible (CWC Section 9616). Not all potential SSIA benefits have been detailed or quantified (e.g., avoided damage to infrastructure and/or life loss, ecosystem restoration), and the planning-level cost estimates remain preliminary; therefore, it is inappropriate to analyze the benefit-cost ratio using information contained in the high-level 2012 CVFPP. During post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, and development of a financing plan for

the CVFPP), DWR will refine the physical elements of the CVFPP and confirm their feasibility, including the costs and benefits of site-specific improvements.

Beginning in the 1850s, flood facilities were built in increments over many decades through the individual and combined efforts of local, State, and federal agencies. The facilities were constructed with the materials at hand over many decades, following evolving design standards and construction techniques. As a result, these flood management facilities provide varying levels of protection, depending on when and how they were constructed and upgraded. Constructing these facilities has also resulted in the loss of natural floodplain habitats, including wetlands.

Construction of the Central Valley's flood management facilities was originally driven by the need to defend the developing valley floor against periodic floods while maintaining navigable channels for commerce. Over time, some facilities have become obsolete or have nearly exceeded their expected service lives, and they are in need of major modification or repair. Further, facilities originally constructed primarily for navigation, sediment transport, and flood management are now also recognized as important for water supply conveyance, ecosystem functions, recreation, and other beneficial uses.

Today, the SPFC must contend with a lack of stable funding and with concerns like deferred maintenance, changes to regulations and societal priorities, dated construction techniques, and imprudent development in deep floodplains, leaving almost a million people at risk. To address these challenges, and to meet legislative direction for a systemwide approach that focuses on public safety and promotes multi-benefit projects, DWR formulated the SSIA, with a preliminary cost estimated between \$14 billion and \$17 billion. The high cost of the SSIA reflects the costly nature of providing flood protection in the Central Valley's deep floodplains and the current conditions of the SPFC facilities, as described in the *Flood Control System Status Report* (DWR 2011).

Specific project features ultimately implemented for the SSIA will depend on a host of factors. These factors include the results of detailed project feasibility studies; designs and cost estimates; environmental benefits and impacts; interaction with other local projects and system improvements; participation by local, State, and federal agencies in project implementation; and changing physical, institutional, and economic conditions. Costs presented in the 2012 CVFPP are preliminary planning-level estimates. The actual costs of these elements will depend on the specific projects that are justified by feasibility studies, project scopes, implementation times, future economic and contractor-bidding conditions,

and many other factors. Funding sources for SSIA projects will vary according to factors such as the type of project or program, beneficiaries, availability of funds, and project or program urgency. Cost-sharing among State, federal, and local agencies may also change depending on project objectives and agency interests. Post-adoption activities (regional flood management planning, development of basin-wide feasibility studies, and development of a financing plan for the CVFPP) will further develop and refine additional project-specific details on cost, feasibility, funding, cost sharing, and local capacity to pay.

Currently available bond funding is insufficient to fully implement the recommended SSIA as a whole. After adoption of the CVFPP in 2012, DWR will prepare a framework for financing projects at a regional level. DWR will use the information gathered during preparation of the framework to prepare the financing plan for the CVFPP that will guide investment in flood-risk management in the Central Valley during the next 20 years (CWC Section 9616(a)(13)). The financing plan will be available in 2013, after adoption of the 2012 CVFPP. The financing plan is critical to implementation, given the uncertainty regarding State, federal, and local agencies' budgets and cost-sharing capabilities. The financing plan may include legislative actions to establish reliable funding for continued implementation of the SSIA in its totality to benefit the entire Central Valley and state of California.

See response to comment G\_CFBF2-14.

**G\_CFBF2-38**

The comment is noted. As stated in the CVFPP, opportunities to expand fish passage, as well as to minimize significant adverse environmental effects when feasible, are considerations for any new or modified weir or bypass. See responses to comments G\_CFBF2-02 and G\_CFBF2-11.

**G\_CFBF2-39**

See response to comment G\_CFBF2-01.

**G\_CFBF2-40**

See responses to comments G\_CFBF2-01, G\_CFBF2-10, and G\_CFBF2-26.

**G\_CFBF2-41**

The comment is noted. As stated in the CVFPP, opportunities to expand fish passage, as well as to minimize significant adverse environmental effects when feasible, are considerations for any new or modified weir or bypass. See responses to comments G\_CFBF2-02 and G\_CFBF2-11.



**G\_CFBF2-42**

See response to comment G\_CFBF2-37. Furthermore, as stated in Master Response 2, the conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified. The CVFPP states the preference to work with willing landowners for needed land acquisitions. All land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable.

In addition to expansion of the bypass system, levee reconstruction, and other elements, the SSIA includes State investments in agricultural conservation easements, which involves working with willing landowners where easements would be consistent with local land use plans. These easements would be used to preserve agriculture and prevent urban development in current agricultural areas, discouraging conversion to land uses that would increase flood risks within floodplains protected by SPFC facilities. Agricultural conservation easements could be purchased through various DWR programs; an example is DWR's Flood Corridor Program, which focuses on nonstructural flood risk reduction integrated with protection of natural resources and agricultural lands.

The PEIR recognizes that converting lands from agricultural uses would result in potentially significant and unavoidable impacts, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA). Many commenters expressed the view that such conversions should not occur, and that including such conversions in the SSIA undervalues agriculture as a primary industry in the Central Valley that provides a range of economic, social, habitat, and other benefits. Many commenters also explained that particular lands have been in family ownership for generations, often dating back to the earliest days of statehood. DWR and the Board respect these benefits and the relationships that many individuals have to any lands that might be converted, which are anticipated to be substantial topics during

any project-level public engagement processes. For additional details, see Master Response 2.

**G\_CFBF2-43**

See response to comment G\_CFBF2-02. In addition, as stated in Master Response 16, USACE ETL 1110-2-571, *Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams and Appurtenant Structures* (2009), treats vegetation as introducing unacceptable uncertainties into levee performance. USACE direction in ETL 1110-2-571 states that these uncertainties must be addressed through vegetation removal and/or engineering works. A preliminary assessment of USACE's approach by DWR concluded that the complete removal of existing woody vegetation along the 1,600-mile legacy Central Valley levee system would be enormously expensive, would divert investments away from more critical threats to levee integrity, and would be environmentally devastating. State and federal resource agencies find that the ETL itself, and the potential impacts of widespread vegetation removal with strict enforcement of that regulation, pose a major threat to protected species and their recovery. Similarly, local agencies are concerned about negative impacts on public safety from rigid ETL compliance if limited financial resources were redirected to lower priority risks. The CVFPP proposes the State's comprehensive, integrated VMS for levees to meet both public safety and environmental goals in the Central Valley.

USACE has proposed a policy for issuing variances from the strict vegetation removal requirements of the ETL. The State intends for the VMS, including LCM, to serve as the basis for a regional variance application that would generally allow vegetation to remain on the waterside of Central Valley levees up to a line 20 feet below the waterside levee crown. The State considers this vegetation to be particularly important for providing habitat while also promoting levee integrity. Although the most recent version of USACE's draft variance policy casts considerable doubt on the viability of such a regional variance that would achieve the State's objective of retaining most waterside vegetation, the VMS has been retained in the CVFPP to support a continued dialogue with USACE, including a likely variance application.

The State will implement a comprehensive, integrated VMS in the Central Valley that both meets public safety goals and protects and enhances sensitive habitats in the Sacramento and San Joaquin valleys. The CVFPP's VMS represents the State's current approach to addressing levee vegetation in the context of USACE ETL 1110-2-571 governing vegetation on federal flood management facilities. However, DWR continues to advocate having USACE participate as a true partner in addressing legacy levee vegetation issues, jointly considering the environmental and risk-reduction

implications of vegetation remediation within the context of prudent expenditure of limited public funds. DWR will continue a dialogue with USACE regarding plan formulation concepts that recognize the agencies' shared responsibility for addressing vegetation issues (along with traditional levee risk factors), within a systemwide risk-informed context intended to enable continued progress on critical cost-shared flood system improvements.

The VMS in the CVFPP includes a long-term adaptive vegetation LCM strategy. As explained in the CVFPP and DPEIR, the LCM strategy generally will not apply to waterside vegetation up to a line 20 feet below the levee crown, and that waterside vegetation will be retained. Although it is true that implementing the LCM strategy will result in the gradual loss of important terrestrial and upper waterside riparian habitat throughout the SPFC levee system, the CVFPP's VMS includes the early establishment of riparian forest corridors that are expected to result in a net gain of this habitat over time. These riparian forest corridors will be established adjacent to existing and new levees such that riparian corridor functions and wildlife habitat will be maintained or improved for the system as a whole. This approach will allow replacement habitat to develop and mature over time, while existing trees within the vegetation management zone are allowed to live out their normal life cycles on the levee slopes.

Levee vegetation subject to removal through LCM will be quantified using the best available information. Specific rates and species types for replanting and other details of implementation of LCM will be determined through collaboration with the appropriate agencies as part of the long-term Conservation Strategy. Appropriate compensation and/or mitigation for the loss of habitat will also be addressed, in consultation with the resource agencies, as the Conservation Strategy is developed.

The CVFPP's VMS is an adaptive approach, and ongoing and future research will include evaluating effects on riparian ecosystem functions from eliminating natural recruitment under LCM. This research may include a monitoring program to determine whether LCM affects species composition and recruitment, and the survival of lower waterside vegetation.

Also, the vegetation loss under the LCM strategy generally will occur passively, over a period of decades. The State is assuming that LCM will be a necessary, and generally sufficient, condition for USACE to issue a regional vegetation variance that will allow most waterside vegetation to be retained. If this assumption proves incorrect and an adequate vegetation variance is not forthcoming from USACE, the appropriateness of the LCM strategy could be reevaluated. Generally, the effects of applying the LCM

strategy in the near term, while a vegetation variance is being pursued, should be fully reversible if the strategy is modified or eliminated at a later date.

Several sections of the CVFPP DPEIR include specific evaluations of the potential environmental effects of the VMS and LCM, while others, such as the discussions of air quality and climate change and GHG emissions, incorporate implementation of the VMS into their overall assessment of program effects. The following DPEIR sections and impact discussions within those sections directly relate to the VMS and LCM:

- *Section 3.2, “Aesthetics”*: Impact VIS-5 (NTMA and LTMA), “Effects of Other NTMAs/LTMAs on Aesthetic Resources”
- *Section 3.3, “Agriculture and Forestry Resources”*: Impact AG-6 (NTMA and LTMA), “Effects of Other NTMAs/LTMAs on Forest Land”
- *Section 3.5, “Biological Resources—Aquatic”*: Impact BIO-A-2 (NTMA and LTMA), “Effects on Special-Status Fish, Fish Movement, Nursery Ground Usage, Riparian Habitat, Designated Critical Habitat, and Essential Fish Habitat Caused by Loss of Overhead Cover and Instream Woody Material as Part of the Vegetation Management Strategy”
- *Section 3.6, “Biological Resources—Terrestrial”*: Impact BIO-T-7 (NTMA and LTMA), “Effects of the Vegetation Management Strategy on Sensitive Natural Communities and Habitats, Special-Status Plants and Wildlife, Wildlife Movement, and Local Plans and Policies”
- *Section 3.18, “Recreation”*: Impact REC-6 (NTMA and LTMA), “Decrease in Quality of Terrestrial and Water-Based Recreation as a Result of Removal of Woody Vegetation from Levees”

Potential impacts of the VMS and LCM on aesthetics and recreation were considered less than significant based on the thresholds of significance used for these resource categories. Consideration of the long-term gradual shift in vegetation conditions resulting from LCM and the fact that the VMS includes replacement plantings to compensate for riparian habitat losses both contributed to this significance conclusion.

However, the impacts of LCM on forestry resources (riparian forest), aquatic biological resources, and terrestrial biological resources were considered potentially significant because of the increased sensitivity of these resources to losses of riparian habitat and the thresholds of significance used to assess these impacts. These impacts were also

considered potentially significant because it could not be assured that implementing the VMS would replace riparian habitat in sufficient quantities, at appropriate times, and/or in appropriate locations to fully replace the functions and values of the riparian vegetation removed. Two mitigation measures in the DPEIR address these potentially significant impacts:

- Mitigation Measure BIO-A-2a (NTMA), “Secure Applicable State and/or Federal Permits and Implement Permit Requirements”
- Mitigation Measure BIO-A-2b (NTMA), “Ensure Full Compensation for Losses of Riparian Habitat Functions and Values Caused by Implementing the Vegetation Management Strategy Along Levees”

These mitigation measures are described in detail in Section 3.5, “Biological Resources—Aquatic,” and then applied to LCM impacts on forestry and terrestrial biological resources in the respective sections.

Mitigation Measure BIO-A-2a (NTMA) requires that project proponents obtain any permits applicable to the activity of removing riparian vegetation and comply with all terms and conditions of these permits. Examples of permits would be a Section 1602 streambed alteration agreement from DFG, federal ESA authorization from USFWS and/or NMFS, and authorization under the CESA from DFG. Any mitigation plantings in the floodway will not be permitted if they would result in substantial increases in flood stage elevations, or alter flows in a manner that would have a substantial adverse effect on the opposite bank.

Mitigation Measure BIO-A-2b (NTMA) requires DWR to coordinate with the Board and levee maintenance agencies that implement the VMS to develop and implement a plan to record data on riparian vegetation lost or removed because of implementation of the VMS, and to ensure adequate compensation for losses of riparian habitat functions and values. The mitigation measure is written as if a single plan is prepared; however, multiple plans addressing individual regions, watersheds, river corridors, or other geographic subdivisions are also acceptable. The plan will be completed and suitable for implementation before the start of riparian habitat removal under the VMS. The plan will include mechanisms to, at a minimum, record and track the acreage, type, and location of riparian habitat to be removed through implementation of the VMS or lost over time through LCM. The plan will also address compensation for the loss and degradation of riparian habitat through the enhancement, restoration, or creation of riparian habitat in other locations.

DWR will track habitat compensation efforts and authorize implementation of vegetation removal under the VMS only at a rate and in locations consistent with the volume and type of compensation habitat that has been established. The plan must, at a minimum, meet the basic performance standard of “Authorized losses of habitat do not exceed the function and value of available compensation habitat.” DWR will coordinate with USFWS and DFG as the plan is prepared and implemented to incorporate into the plan appropriate compensation for effects on special-status species from vegetation management along the levee system. Any mitigation plantings in the floodway would not be permitted if they would result in substantial increases in flood stage elevations, or alter flows in a manner that would have a substantial adverse effect on the opposite bank.

In many cases, implementing Mitigation Measures BIO-A-2a (NTMA) and BIO-A-2b (NTMA) related to implementation of the VMS would reduce impacts to an overall less-than-significant level, and even sometimes to a beneficial level. This is particularly true for forestry resources because the overall acreage of riparian forest habitat would not be reduced, and a net overall increase would likely occur. Therefore, impacts on forestry resources from implementing the VMS and LCM are considered less than significant after mitigation. However, removing riparian habitat in some locations and enhancing, restoring, or creating habitat elsewhere would result in overall relocation of riparian habitat within the Extended SPA. It is possible that although some stream or river reaches may benefit from compensatory habitat, habitat values in other stream or river reaches could be substantially reduced, adversely affecting special-status fish and wildlife species that benefit from, or are dependent on, waterside riparian vegetation in these river reaches. Potential adverse effects include increased predation risk, increased water temperatures for fish, and reduced food availability. In addition, planting vegetation in the floodway may not be authorized by the Board, USACE, or other agencies if the vegetation would impede floodflows sufficiently that a rise in water surface elevation would cause a significant increase in risk to public safety. Therefore, it cannot be assured that in all instances fisheries and wildlife impacts would be mitigated to a less-than-significant level. Therefore, impacts on these resources from implementing the VMS and LCM are considered potentially significant and unavoidable.

#### ***G\_CFBF2-44***

As stated in Master Response 17, the current science and best available information do not properly support a complete, quantitative analysis for climate change impacts on flood management. Climate change impacts and considerations have been incorporated into many recent and ongoing California resources planning studies, using varying analytical approaches.

The CVFPP is the first major policy-level study with broad applications that addresses climate change for flood management in California. Typical analyses of climate change impacts—that is, assessments for long-term water supply needs—consider likely changes in average temperature and precipitation. However, climate change impacts on extreme events, such as floods, will not result from changes in averages, but from changes in local extremes.

To that end, DWR also has invested resources in developing a unique approach for assessing the impacts of climate change on Central Valley flood management. DWR has worked with leading experts and practitioners in the field to develop a new methodology based on the intensity of “atmospheric rivers,” which are fast-moving, concentrated streams of water vapor that can release heavy rains. The commonly known “Pineapple Express” is a form of atmospheric river.

However, insufficient data are available to be able to predict the magnitude or frequency of climate change impacts on extreme storm events, and climate projections from global climate models have difficulty representing regional- and local-scale precipitation patterns and processes that drive extreme events. DWR is working instead on the concept of prudent decision making that focuses on investments that could accommodate a broader range of climate change scenarios, rather than optimizing investments within a few selected extreme scenarios. DWR recently applied the resulting Threshold Analysis Approach to the Yuba-Feather system in a proof-of-concept pilot study. The results of the pilot study suggest that under F-CO, the Yuba River system is more vulnerable to changing climate conditions because of the limited regulating capacity (outlet release capacity) of New Bullards Bar Dam. This information provides guidance for the overall investment strategy for modifications such as enlarging outlets at New Bullards Bar Dam. DWR intends to fully develop the Threshold Analysis Approach for the 2017 CVFPP Update with new Central Valley hydrology and improved atmospheric river indices. This pilot study and the overview of potential climate change effects on the Central Valley flood management system are further detailed in Attachment 8K, “Climate Change Analysis,” in Appendix A, “Central Valley Flood Protection Plan.”

Although the 2012 CVFPP does not include a complete, quantitative analysis for climate change impacts on flood management, the CVFPP does include various system elements in its climate change adaptation strategy. The system elements provide additional benefits to the regional elements, and improve the overall function and performance of the SPFC in managing large floods. They also provide greater flexibility in accommodating future hydrologic changes, including climate change, and

provide greater system resiliency in the face of changing downstream conditions. An evaluation of climate change in Section 6.6 of the DPEIR, titled “Effects of Global Climate Change on Program Facilities and Operations,” comes to similar conclusions.

The SSIA includes these system elements that provide flexibility to accommodate higher flows resulting from climate change:

1. Wider bypasses to lower floodwater surface elevations would increase flow-carrying capacity and flexibility to deal with higher floodflows that may occur because of climate change.
2. Changes in reservoir operations from F-BO and F-CO can provide additional flexibility and adaptability to changes in extreme flood events.
3. The SSIA does not preclude State participation with others in reservoir expansion projects, and includes obtaining rights for floodplain transitory storage from willing landowners.

Sea-level rise will affect peak water surface elevations within the Delta and some distance upstream along its tributaries. The estimated average sea-level rise is currently under review by the National Research Council. For the 2012 CVFPP, high-tide conditions during the 1997 flood were used as the boundary conditions for hydraulic analysis; this tide was about 2 feet higher than would normally be expected on the basis of solar and lunar gravitational forces that create tides, and could be considered an initial, surrogate sea-level-rise condition resulting from climate change. DWR will continue to coordinate with other DWR programs, the Delta Stewardship Council’s Delta Plan, and ongoing USACE feasibility studies to collectively address how sea-level rise could contribute to potential estuary flooding in the Delta. Improved information about sea-level rise will be used in the 2017 CVFPP Update. DWR will develop approaches to address sea-level rise that may vary depending on the expected range and rate of sea-level rise.

**G\_CFBF2-45**

See response to comment G\_CFBF2-44.

**G\_CFBF2-46**

See response to comment G\_CFBF2-01.

**G\_CFBF2-47**

See response to comment G\_CFBF2-44.



**G\_CFBF2-48**

See response to comment G\_CFBF2-11.

**G\_CFBF2-49**

See responses to comments G\_CFBF2-04, G\_CFBF2-09, G\_CFBF2-17, G\_CFBF2-28, and G\_CFBF2-31, as well as Master Response 2, which addresses land use effects and potential land acquisitions associated with implementation of the CVFPP.

**G\_CFBF2-50**

See response to comment G\_CFBF2-23.

**G\_CFBF2-51**

See responses to comments G\_CFBF2-04 and G\_CFBF2-28.

**G\_CFBF2-52**

See responses to comments G\_CFBF2-04 and G\_CFBF2-28.

**G\_CFBF2-53**

See response to comment G\_CFBF2-08, and G\_CFBF2-28.

**G\_CFBF2-54**

See response to comment G\_CFBF2-08.

**G\_CFBF2-55**

See response to comment G\_CFBF2-11. In addition, as stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)).

The SSIA includes the supporting goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time. Under the SSIA, ecosystem restoration opportunities are integral parts of flood system improvements, including projects for urban areas, small communities, and rural-agricultural areas. Integrating ecosystem restoration into these flood protection projects will focus on preserving important SRA habitat along riverbanks and help restore the regional continuity/connectivity of such

habitats. In addition, SSIA ecosystem restoration activities may include improving fish passage, increasing the extent of inundated floodplain habitat, creating opportunities to allow river meandering and other geomorphic processes, or other measures that may be identified during post-adoption activities. Potential effects on flood management and channel capacity will be considered during implementation of any ecosystem restoration actions. Post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, State and USACE permitting) will allow for detailed development and review of the conceptual ecosystem restoration targets described in the CVFPP and its attached Conservation Framework.

***G\_CFBF2-56***

See response to comment G\_CFBF2-06.

***G\_CFBF2-57***

The comment regarding reducing permitting requirements and costs is noted.

***G\_CFBF2-58***

The comment is noted.

***G\_CFBF2-59***

See responses to comments G\_CFBF2-08 and G\_CFBF2-23. The specific text change has been considered and is noted; however, no change to the CVFPP text was made.

***G\_CFBF2-60***

See responses to comments G\_CFBF2-06 and G\_CFBF2-23. In addition, as stated in Master Response 4, the CVFPP does not include levee design criteria for rural areas, but recognizes that the urban levee design criteria are not always practical or affordable for protecting rural areas. DWR supports future development and implementation of rural levee repair criteria in coordination with local and regional flood management agencies. The comment is noted.

***G\_CFBF2-61***

As stated in Master Response 13, anticipated activities after adoption of the 2012 CVFPP include regional flood management planning, development of basin-wide feasibility studies, and completion of project-level proposals and environmental compliance. These efforts will engage local entities and stakeholders to help identify projects to meet local and regional needs for

flood management, refine the conceptual system elements proposed in the adopted plan, and identify specific projects for construction.

As part of regional flood management planning, regional plans will be prepared with active participation by regional implementing, operating, and maintaining agencies; local land use agencies (counties and cities); agricultural and environmental interests; emergency responders; and tribes. This effort will collect on-the-ground information regarding flood risks and needs, identify local and regional improvement projects, assess the performance and feasibility of these projects, and develop plans that reflect the priorities of local entities in reducing flood risks in each of the nine regions identified in the CVFPP. Each plan will also assess proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. Development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts.

Two basin-wide feasibility studies will be prepared, one in the Sacramento River Basin and one in the San Joaquin River Basin, to refine the major system elements proposed in the 2012 CVFPP (such as bypass expansion and new bypasses) and assess their compatibility with prioritized local projects identified through regional flood management planning. These combinations of system element options and regional elements will form “alternatives” for further evaluation and comparison on a systemwide scale. Stakeholder engagement will be an important and complex component of the basin-wide feasibility studies. It is anticipated that work groups will form to help evaluate and refine physical options for system elements (e.g., bypass expansion and new bypasses), identify implementation challenges, and provide input into the planning process. The feasibility studies will be conducted in close coordination with USACE (and ongoing federal feasibility studies) and local implementing agencies.

The regional and basin-wide feasibility planning efforts will help identify specific improvement projects for design and environmental review. Stakeholders and the public will have additional opportunities to provide input. The draft feasibility reports and any accompanying environmental documentation will be made available to the public for review and comments.

These post-adoption activities are discussed in greater detail in Master Response 14.

Regional flood management planning, to be conducted in each of nine regions identified in the 2012 CVFPP, is an important next step in

identifying specific improvements to rural-agricultural areas, small communities, and urban areas consistent with the SSIA. Upon CVFPP adoption, DWR will work closely with local entities to collect on-the-ground information regarding flood risks and needs, identify potential local and regional improvement projects, assess the performance and feasibility of these projects, and develop proposals that reflect the priorities of local entities in reducing flood risks. Each regional plan will present an assessment of proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. DWR intends to provide guidance as well as technical and financial assistance to local agencies to prepare the regional flood management plans, subject to availability of funds.

Development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts. Information and outcomes from the regional planning process will inform the State-led basin-wide feasibility studies, preparation of a financing plan for the CVFPP, and the first update of the CVFPP (scheduled for completion by 2017). This regional effort is scheduled to be launched publicly in June 2012 and is anticipated to continue through 2013.

DWR will engage regional flood planning partners to develop and implement communication strategies with broad interest groups to brief them on flood management planning in their regions. Regional implementing and operating agencies, land use agencies, and interest groups will be invited to participate in the planning process. Each regional planning process will seek input, as appropriate, from agricultural interests, environmental interests, permitting agencies/resource agencies, local emergency responders, tribes, and other stakeholders. DWR anticipates that a regional flood working group will be formed in each region.

**G\_CFBF2-62**

See responses to comments G\_CFBF2-23 and G\_CFBF2-61.

**G\_CFBF2-63**

See response to comment G\_CFBF2-55. As stated in Master Response 4, cost-sharing rules are governed by federal and State laws, regulations, and policies, which have continued to evolve over time. CWC Section 12585.7 identifies the State cost-share of nonfederal capital costs for flood management projects. The State normally pays 50 percent of the nonfederal cost-share, but will pay up to 20 percent more (for a maximum of 70 percent of the nonfederal cost-share) if the project makes significant

contributions to other State interests and objectives (e.g., the ecosystem, recreation, open space, protection for disadvantaged communities, and protection for transportation and water supply facilities).

The 2012 CVFPP includes an estimate of potential cost-sharing by State, federal, and local entities for the SSIA, developed to assist with CVFPP development and analysis. However, cost-sharing for implementation of the SSIA will be refined during feasibility studies and project implementation as additional project-level information is gathered and the interests of the partnering agencies in elements of the SSIA are identified. Post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, and development of a financing plan for the CVFPP) will address cost-sharing and local capacity to pay.

The CVFPP does not provide funding assurances for any specific project or improvement element, and current bond funding is not sufficient to fully implement the SSIA. A financing plan will be prepared as part of the post-adoption activities (CWC Section 9620(c)).

***G\_CFBF2-64***

See responses to comments G\_CFBF2-31 and G\_CFBF2-61. In addition, as stated in Master Response 5, the flood legislation passed in 2007, including the Central Valley Flood Protection Act of 2008 (part of SB 5) and ABs 162, 70, 2140, and 156, strengthened the link between local land use decisions and regional flood management. The land use planning and related requirements specified in the 2007 flood legislation vary depending on location (State of California, Sacramento and San Joaquin Drainage District, and Sacramento–San Joaquin Valley). Some requirements apply to all areas within a flood hazard zone, whether or not they are protected by SPFC facilities or connected to the CVFPP.

The requirement for an urban (200-year) level of flood protection is included in SB 5, and through that law is triggered by adoption of the CVFPP. State law (SB 5) requires an urban level of flood protection for urban and urbanizing areas within the Sacramento–San Joaquin Valley (as defined in CGC Section 65007(g)) within a flood hazard zone. CGC Sections 65865.5, 65962, and 66474.5 require all cities and counties within the Sacramento–San Joaquin Valley to make findings related to an urban level of flood protection before they may take any of the following actions:

- Enter into a development agreement for a property

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- Approve a discretionary permit or entitlement for any property development or use, or approve a ministerial permit that would result in construction of a new residence
- Approve a tentative map/parcel map for a subdivision

Existing developments or remodels are not affected by these requirements unless they require one or more of the covered land use decisions listed above.

DWR developed the *Draft Urban Level of Flood Protection Criteria* (April 2012) to assist cities and counties in making findings related to the urban level of flood protection. DWR also developed the *Urban Levee Design Criteria* (May 2012), which contains the engineering criteria that apply when cities and counties use levees and floodwalls to provide an urban level of flood protection. Those criteria are incorporated by reference into the *Draft Urban Level of Flood Protection Criteria*.

State law (SB 5) requires each city and county in the Sacramento–San Joaquin Valley to amend its general plan within 24 months of the Board’s adoption of the CVFPP (see CGC Sections 65302.9 and 65860.1) to include consistent information. These cities and counties must also amend their zoning ordinances accordingly within 36 months of the Board’s adoption of the CVFPP. Cities and counties could consider incorporating the following information from the CVFPP into their general plan amendments:

- Data and analyses contained in the CVFPP, such as the locations of the SPFC and other flood management facilities, locations of property protected by those facilities, and locations of flood hazard zones
- Goals, policies, and objectives based on the CVFPP’s data and analyses, for the protection of lives and property and reduction of the risks of flood damage
- Feasible implementation measures designed to carry out the goals, policies, and objectives

The 2012 CVFPP was prepared at a conceptual level. Consequently, the plan does not include detailed floodplain mapping, data on local flood stages, or specifics about future on-the-ground projects. This information will be developed during post-adoption implementation activities. However, a great deal of information and data on Central Valley flood risks and vulnerabilities were collected as part of 2012 CVFPP development. DWR has provided much of this information in the attachments to the CVFPP and will make further information available to assist local agencies.

The CVFPP focuses on SPFC facilities (including consideration of pertinent non-SPFC levee improvements in urban areas), which relate primarily to flooding of the mainstem Sacramento and San Joaquin rivers. DWR recognizes that in some circumstances, the information and planned improvements included in the SSIA may not be sufficient for cities and counties to make findings regarding an urban level of flood protection without additional analysis. Cities and counties should consider the criteria in the *Draft Urban Level of Flood Protection Criteria* for more detail. Further, cities and counties outside the SPFC Planning Area may not find pertinent geographic information in the CVFPP for their land use planning purposes, but could consider the goals, policies, and objectives for their actions.

DWR has made the following efforts to provide technical assistance to local jurisdictions related to implementation of the CVFPP:

- DWR completed its legislative responsibility by developing urban level of flood protection criteria consistent with current legislation, and in collaboration with cities and counties.
- DWR completed the draft CVFPP for the Board's adoption:
  - The CVFPP describes the State's investment approach and interests in SPFC facilities and the associated protected areas.
  - The *Draft Urban Level of Flood Protection Criteria* is incorporated by reference.
  - The *Urban Levee Design Criteria*, which describes the engineering criteria for levees and floodwalls, is incorporated by reference in the *Draft Urban Level of Flood Protection Criteria* and the CVFPP.
- DWR has shared and will continue to share available data, tools, and other relevant information with cities and counties, including the following details:
  - CVFED Program (anticipated 2013)
    - Mapping of the 200-year floodplain for the mainstem Sacramento and San Joaquin rivers and major tributaries
    - Fine-scale topographic (LiDAR) data
    - System hydraulic models and data
  - Central Valley Hydrology Study (anticipated 2013)

- System hydrology (including climate change considerations)
- System hydrologic models and data
- Levee Evaluation Program (ongoing, with currently available preliminary data)
  - Inspection and geotechnical data
  - Levee integrity assessments and data
- Existing data and tools used to develop the 2012 CVFPP
- With potential legislative support and collaboration with other federal and State agencies (e.g., FEMA), DWR may consider providing additional assistance to cities and counties as they develop or acquire additional floodplain information to support their local planning and decision making.
- DWR has completed a guide titled *Implementing California Flood Legislation into Local Land Use Planning: A Handbook for Local Communities* (2010) ([http://www.water.ca.gov/floodmgmt/lrafmo/fmb/docs/Oct2010\\_DWR\\_Handbook\\_web.pdf](http://www.water.ca.gov/floodmgmt/lrafmo/fmb/docs/Oct2010_DWR_Handbook_web.pdf)). This handbook covers more than the requirements of an urban level of flood protection. It describes how the 2007 flood risk management legislation affects cities' and counties' responsibilities to meet local planning requirements such as those for general plans, development agreements, zoning ordinances, and tentative maps.

State law (SB 5) requires cities and counties to make findings on certain land use decisions in relation to an urban level of flood protection (CGC Sections 65865.5, 65962, and 66474.5). Separately, the law required DWR to prepare preliminary 100-year and 200-year flood-frequency maps using available information and make them available to cities and counties in 2008 (CWC Sections 9610(a)(1), 9610(a)(2), and 9610(a)(3)). This requirement is not directly connected to the requirements for an urban level of flood protection or associated findings.

In August 2008, DWR provided preliminary maps (as map books in CDs) to 91 cities and 32 counties in the Sacramento–San Joaquin Valley for use as the “best available information” about current flood protection. DWR’s Floodplain Risk Management Branch extended the best-available-mapping project and developed “statewide” preliminary best-available maps for the 100-, 200-, and 500- year floodplains. These maps can be accessed by the public via a GIS-based Web viewer at <http://gis.bam.water.ca.gov/bam>.



Pursuant to CWC Section 9121 (enacted through AB 156), DWR established the Flood Risk Notification Program to increase flood risk awareness by effectively communicating about flood risk to individual property owners, other members of the public, and local, State, and federal agencies.

DWR is attempting to provide as much useful information related to 200-year floodplains as possible given its current funding and authority to use available funding. DWR is developing 200-year floodplain maps through its CVFED Program for areas protected by the SPFC, based on potential flows in the Sacramento and San Joaquin rivers (mainstem and major tributaries). Depending on the source of flooding, these maps may or may not be sufficient to support cities and counties in making their findings related to an urban level of flood protection. The cities and counties are encouraged to consult the *Draft Urban Level of Flood Protection Criteria* for additional detail at <http://water.ca.gov/floodsafe/leveedesign/>.

State law (SB 5) did not provide any specific enforcement authority for requirements regarding the urban level of flood protection. The Board has review and comment authority in one situation related to the definition of “adequate progress”: CGC Section 65007(a)(2)(B) grants the Board the ability to make a finding that an agency is making adequate progress even when it is not meeting the time frame set in CGC Section 65007(a)(2)(A), if the requirements are not being met because of an insufficient State appropriation based on a prior agreement.

Other provisions enacted by the 2007 flood legislation package require cities and counties to consult with the Board when amending certain general plan elements. Please see *Implementing California Flood Legislation into Local Land Use Planning: A Handbook for Local Communities* for additional detail.

**G\_CFBF2-65**

See responses to comments G\_CFBF2-04 and G\_CFBF2-09.

**G\_CFBF2-66**

See response to comment G\_CFBF2-02.

**G\_CFBF2-67**

See response to comment G\_CFBF2-31.

**G\_CFBF2-68**

See responses to comments G\_CFBF2-04 and G\_CFBF2-09.

***G\_CFBF2-69***

See responses to comments G\_CFBF2-09, G\_CFBF2-11, and CFBF2-17.

***G\_CFBF2-70***

See response to comment G\_CFBF2-11.

***G\_CFBF2-71***

See response to comment G\_CFBF2-11.



# CALIFORNIA FARM BUREAU FEDERATION

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## G\_CFBF3

Sent via E-Mail  
cvfppcom@water.ca.gov

February 24, 2012

Ms. Nancy Moricz  
Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento, CA 95821

Re: Comments on the Public Draft 2012 Central Valley Flood Protection Plan

Dear Ms. Moricz:

The Department of Water Resources' Draft Central Valley Flood Protection Plan is a long and complex document. It is obviously the result of an enormous amount of effort on the part of the Department, and there is much in the plan, particularly in terms of data and technical analysis and integration, that is good. Unfortunately, there are some significant gaps in the Plan, as currently drafted—including, especially, the Plan's treatment of impacted agricultural lands and of the Valley's agricultural economy. To assist the Board in its review of the Plan, here are some important areas in which Farm Bureau suggests the Board might "focus":

- The Flood Plan proposes to impact some 35,000 to 40,000 acres of productive agricultural land throughout implementation of the Plan's bypass expansion and setback levee proposals. What efforts have been made, or will be made to avoid or reduce the loss of these lands—or, at a minimum, to retain them in agricultural production?
- The Plan lacks an adequate description of how the State would obtain lands or interests in lands for implementation of proposed setback and bypass expansions. How, specifically, would lands be obtained? When would they be obtained from willing sellers, and when would they be obtained by eminent domain? Would lands be acquired in fee title, or would the State acquire only an easement? Would lands acquired in fee title be leased back? To whom? To the original owner or tenant, or to someone else? Would the use of such lands be restricted to agriculture in perpetuity (as under as agricultural conservation easement), or would easements or deed restrictions (or a lack thereof) allow lands originally farmed to later transition into habitat, for example, if acquired by the State or an NGO from a willing seller? Similarly, if an NGO, or if the State acquires an agricultural parcel and allows it to

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G\_CFBF3-01

G\_CFBF3-02

restore to habitat, would either the NGO or the State at some point become liable for either the direct or cumulative impacts of a failure to maintain the land free from dense vegetation that might adversely impact the performance of the flood system? What legally enforceable mechanisms would prevent such situations from arising?

G\_CFBF3-03

- What mechanisms will ensure that the 10,000 habitat cap identified in the Plan will be respected—and that the remaining 25,000-30,000 acres that would remain farmable will, in fact, “remain farmable”?

G\_CFBF3-04

- What mitigation is proposed for the conversion of prime agricultural lands?

G\_CFBF3-05

- What mechanisms will be put in place to ensure that current and future flood capacity will not be lost to maturing riparian forests in our floodways?

G\_CFBF3-06

- How will the reestablishment of habitat in our floodways be consistent with existing flood easements requiring lands in the floodways to be maintained free of obstructions?

G\_CFBF3-07

- What assistance beyond payment of fair market value will be provided impacted farmers to allow them to transition from behind the levees to inside the levees, and to continue their operations if they so desire?

G\_CFBF3-08

- What, if any, is the relationship between DWR’s vegetation management strategy, the proposed 10,000 acres of permanently restored habitat, and DWR’s Conservation Strategy and Conservation Framework? Is 10,000 acres the expected total extent of any mitigation requirement, or is it possible that additional mitigation requirements will be imposed, either as a result of DWR’s vegetation management plan or otherwise?

G\_CFBF3-09

- How can the reduction in local revenue generating capabilities, with the loss of thousands of acres of agricultural lands and the imposition of a permanent moratorium on growth in rural areas, be reconciled with the State’s finance plan, calling as it does for unprecedented levels of local investment?

G\_CFBF3-10

- If urban populations or interests are the primary beneficiaries of large setback levees and bypass expansions and less than 100-year rural levee protections, why are these interests not an explicit part of the funding puzzle, separate from the public at large?

G\_CFBF3-11

- How (in greater detail) would the “Corridor Management Plans,” “Flood Corridor Programs,” and “Regional Flood Plans” work, and could any or all of these planning tools be used to maintain a proper balance between farming in the bypass, as a 100% flood-compatible and self-sustaining land use, and riparian forest, as a less compatible or ultimately incompatible land use, given the Flood Plan’s declared primary objective to protect life and property and convey flood flows?

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G\_CFBF3-12

- How will DWR and/or the Flood Board use “Corridor Management Plans,” “Flood Corridor Programs,” and “Regional Flood Plans,” or any other means at its disposal to foster actual “partnerships” with local interests, as described in the Plan?

G\_CFBF3-13

- In terms of the prioritization of limited state funding, DWR states in the Plan that it will prefer projects that incorporate habitat elements over straight flood protection projects. How does this square with the Plan’s assertion that flood risk reduction and flood protection are its primary concerns? This preference for habitat-would appear to put local management entities at a disadvantage and would seemly tend to undermine the integrity of the flood system overall, over time. Is this intended? If not, how would this be avoided?

G\_CFBF3-14

- Does DWR feel that the city and county governments that will be charged under the Water Code with soon amending their local zoning and general plans are ready to assume this role? If not, what specifically will DWR do to get them there?

G\_CFBF3-15

- Environmental mitigation and costly permitting have made traditional flood protection improvements and maintenance cost prohibitive. It is not that it is physically impossible or technically infeasible to repair, improve and maintain our flood system: The problem is excessive regulation. Programmatic streamlining of mitigation requirements and excessive bureaucracy could dramatically reduce the price tag of many elements of the design capacity alternative. A hybrid of the design capacity approach and the statewide investment approach, with aggressive streamlining, could achieve many or all of the same benefits as statewide investment approach, while reducing the need for large levee setbacks, new, and "expanded" bypasses. The Flood Board should direct the DWR consider such a potential hybrid, as a potential variant on the statewide investment approach in implementation, if not sooner.

G\_CFBF3-16

California Farm Bureau Federation thanks you for the opportunity to comment on the Public Draft 2012 Central Valley Flood Protection Plan.

Yours truly,



Justin E. Fredrickson  
Environmental Policy Analyst

**California Farm Bureau Federation,  
Justin Fredrickson**

***Response***

***G\_CFBF3-1***

As stated in Master Response 2, the 2012 CVFPP outlines a broad range of potential physical and institutional projects and actions to reduce flood risks. Some actions identified in the SSIA can be implemented within the existing footprint of the SPFC, while others will require new lands and/or easements. Because the SSIA was developed at a conceptual or program level, it does not identify any specific project; therefore, any lands or properties that may be needed to implement the plan are unknown at this time. Initial, preliminary planning-level analyses indicate that actions outlined in the SSIA (expansion of the bypass system; new bypasses; and levee reconstruction, including levee setbacks) could expand flood system lands by as much as 40,000 acres. However, this initial estimate will be refined during follow-on studies and further analysis conducted after adoption of the CVFPP. It is anticipated that land uses within any expansions of the flood management system would be a mix of flood facilities and agricultural and environmental conservation uses; however, the exact amount and geographical distribution of these land uses will require further analyses as future specific projects are considered and evaluated. For additional details, see Master Response 2.

Regarding the retention or protection of agricultural lands, as stated in Master Response 3, the PEIR prepared for the CVFPP includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) on pages 3.3-34 and 3.3-35 of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed. For additional details, see Master Response 3.

***G\_CFBF3-2***

As stated in Master Response 2, the SSIA includes State investments in agricultural conservation easements, which involves working with willing landowners where easements would be consistent with local land use plans.

These easements would be used to preserve agriculture and prevent urban development in current agricultural areas, discouraging conversion to land uses that would increase flood risks within floodplains protected by SPFC facilities. Agricultural conservation easements could be purchased through various DWR programs; an example is DWR's Flood Corridor Program, which focuses on nonstructural flood risk reduction integrated with protection of natural resources and agricultural lands. Furthermore, as stated in Master Response 1, specific dimensions, capacities, and alignments for expanded and new bypasses have not been determined as part of the preliminary analyses conducted for the 2012 CVFPP. The analyses contained in the 2012 CVFPP are intended to be conceptual only; they were included as a basis for a program-level analysis that would allow broad comparisons of various flood management options. Potential locations and preliminary sizes described in the plan were identified using information obtained from previous studies and through discussions with local agencies and stakeholders. Details of land acquisition would follow at the post-plan adoption. For additional details, see Master Responses 1, 2, and 14.

Regarding the concern about liability for either the direct or cumulative impacts of failure to maintain the land free from dense vegetation and the legally enforceable mechanisms that would prevent such situations from arising, as stated in the Conservation Framework, the expanded floodways provided by setting levees back will be designed to accommodate vegetation, while still meeting channel conveyance and ETL requirements for the new levees. In addition, see Master Response 12.

**G\_CFBF3-3**

As stated in response to comment G\_CFBF3-1, the initial, preliminary planning-level analyses indicate that actions outlined in the SSIA (expansion of the bypass system; new bypasses; and levee reconstruction, including levee setbacks) could expand flood system lands by as much as 40,000 acres. However, this initial estimate will be refined during follow-on studies and further analysis conducted after adoption of the CVFPP. It is anticipated that land uses within any expansions of the flood management system would be a mix of flood facilities and agricultural and environmental conservation uses; however, the exact amount and geographical distribution of these land uses will require further analyses as future specific projects are considered and evaluated. For additional details see Master Responses 2 and 3.

As stated in Master Response 14, regional flood management planning, to be conducted in each of nine regions identified in the 2012 CVFPP, is an important next step in identifying specific improvements to rural-agricultural areas, small communities, and urban areas consistent with the

SSIA. Upon CVFPP adoption, DWR will work closely with local entities to collect on-the-ground information regarding flood risks and needs, identify potential local and regional improvement projects, assess the performance and feasibility of these projects, and develop proposals that reflect the priorities of local entities in reducing flood risks. Each regional plan will present an assessment of proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. DWR intends to provide guidance as well as technical and financial assistance to local agencies to prepare the regional flood management plans, subject to availability of funds.

Regional flood management plans are anticipated to:

- Assess regional flood risks and management actions (projects) to reduce these risks
- Discuss regional priorities, including criteria used to prioritize individual projects
- Describe specific projects, including their potential costs, regional and systemwide benefits, and beneficiaries
- Provide a financial plan describing how the proposed projects would be funded, including cost sharing and financing for local shares
- Describe regional governance of flood management

Development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts. Information and outcomes from the regional planning process will inform the State-led basin-wide feasibility studies, preparation of a financing plan for the CVFPP, and the first update of the CVFPP (scheduled for completion by 2017). This regional effort is scheduled to be launched publicly in June 2012 and is anticipated to continue through 2013.

DWR will engage regional flood planning partners to develop and implement communication strategies with broad interest groups to brief them on flood management planning in their regions. Regional implementing and operating agencies, land use agencies, and interest groups will be invited to participate in the planning process. Each regional planning process will seek input, as appropriate, from agricultural interests, environmental interests, permitting agencies/resource agencies, local emergency responders, tribes, and other stakeholders. DWR anticipates that



a regional flood working group will be formed in each region. For additional details, see Master Response 14.

**G\_CFBF3-4**

As stated in Master Response 2, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. However, these preliminary planning estimates will be refined during subsequent project-level analyses. For additional details, see Master Response 2.

It is assumed that “mitigation,” as mentioned in the comment, means “compensation,” which is addressed in response to comment G\_CFBF3-2.

**G\_CFBF3-5**

As stated in Master Response 16, any mitigation plantings in the floodway will not be permitted if they would result in substantial increases in flood stage elevations, or alter flows in a manner that would have a substantial adverse effect on the opposite bank. In addition, planting vegetation in the floodway may not be authorized by the Board, USACE, or other agencies if the vegetation would impede floodflows sufficiently that a rise in water surface elevation would cause a significant increase in risk to public safety. For additional details, see Master Response 16.

**G\_CFBF3-6**

See response to comment G\_CFBF3-5, which addresses vegetation maintenance. In addition, see page 2-10 of the DPEIR, where it is stated that “flood system capacity can be increased through widening floodways and bypasses, setting back levees away from the active river channel, and increasing floodwater storage” and “Widening floodways and setting back levees along some reaches of major rivers and tributaries also provides significant opportunities to restore native habitat...” The reestablishment of habitat (vegetation) in floodways is further described with respect to setback levees on page 5-12 in Volume 1, Attachment 2 of the CVFPP, where it is stated that “The expanded floodways provided by setting levees back will be designed to accommodate vegetation, while still meeting channel conveyance and ETL [Engineering Technical Letter] requirements for the new levees.”

However, as stated in Master Response 2, considerable additional work will be required before the bypass projects proposed in the plan are approved and implemented. Details about the dimensions, capacities, and alignments of expanded and new bypasses will be refined during post-

adoption implementation activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these activities are conducted, the feasibility of proposed bypass elements will be evaluated and opportunities for public engagement and input will become available.

Work will include a review of existing real estate rights owned by the Board, and evaluations will be made to determine whether additional interests in real property will be necessary.

***G\_CFBF3-7***

As stated in Master Response 3, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed. Also see response to comment G\_CFBF3-1.

***G\_CFBF3-8***

There is a distinction between DWR's VMS, DWR's Conservation Strategy and Conservation Framework, and the proposed 10,000 acres of permanently restored habitat mentioned in the 2012 CVFPP.

DWR's VMS is a strategy for managing vegetation on levees within the SPFC and the DWR Conservation Strategy and Conservation Framework references this strategy. The estimated 10,000-acre increase in habitat would occur primarily on nonlevee land areas within the expanded floodways created by setting back levees.

The restored habitat would be accommodated within setback levees as described on page 5-12 in Volume 1, Attachment 2 of the CVFPP, where it is stated that "Improvements to the Central Valley State-federal levee system will strive to achieve multiple objectives through use of setback levees, where practical, to separate the flood control system from the riverbanks and their attendant riparian vegetation. Setback levees can increase channel capacity and reduce water surface elevations at flood stage locally, while avoiding loss of important riparian and SRA habitat and improving floodplain area. This can result in flood system and habitat improvements. Engineering requirements for new setback levees are the same as for new levees. The expanded floodways provided by setting levees back will be designed to accommodate vegetation, while still meeting channel conveyance and ETL requirements for the new levees."

The 10,000 acres of new habitat mentioned in the 2012 CVFPP is an initial estimate and may change; see response to comment G\_CFBF3-1 describing how the initial acreage estimates presented in the 2012 CVFPP will be refined during follow-on studies and further analysis conducted after adoption of the CVFPP.

**G\_CFBF3-9**

The State's economy is driven by many factors and agriculture is a large contributor. Currently, thousands of acres of agriculture and the small communities associated with rural California are at risk of flooding. The losses associated with the flooding of communities include losses of homes, businesses, agricultural processing facilities, and lives. The CVFPP seeks to reduce the property and lives that are currently at risk in small communities and rural areas.

**G\_CFBF3-10**

The State's funding scenario in the CVFPP does include funding from urban centers. As regional planning is started as part of the post-plan implementation, projects and funding mechanisms will be identified. As stated in Master Response 15, the State cost-share for federal flood projects is currently between 50 and 70 percent of the nonfederal share of the project costs, depending on the project's contributions to multiple objectives. After the passage of Proposition 84 and Proposition 1E, DWR developed interim cost-sharing guidelines for flood projects where the federal government is not currently sharing in the project costs. The State cost-share under these guidelines may range from 50 to 90 percent, depending on the project's contribution to multiple objectives and the degree to which the local area may be economically disadvantaged.

**G\_CFBF3-11**

Section 4.1.4, and specifically Figure 4-1, in the 2012 CVFPP provides some information on the interrelationships between corridor management plans and flood corridor programs, and flood management programs; with regard to agriculture, on page 4-8 it is stated, "A CMP [corridor management plan] also identifies policies for compatible land uses, such as agriculture and recreation, within the corridor. In addition to addressing habitat restoration and flood facility maintenance, CMPs are a foundation for securing programmatic regulatory agency approvals for ongoing maintenance activities and routine habitat restoration. CMPs rely on coordination, collaboration, and cooperative working relationships with interested parties and stakeholders, including State, federal, and local agencies, nongovernmental organizations, maintenance districts, agricultural interests, and landowners."

With regard to greater detail requested by the commenter, as stated in Master Response 1, the CVFPP is a high-level document that describes the State's vision for a sustainable flood management system in the Central Valley. Greater detail on the plans mentioned by the commenter will be developed in subsequent efforts as described in Section 4.4 of the 2012 CVFPP.

***G\_CFBF3-12***

As stated in Master Response 14, anticipated activities after adoption of the 2012 CVFPP include regional flood management planning, development of basin-wide feasibility studies, and completion of project-level proposals and environmental compliance. These efforts will engage local entities and stakeholders to help identify projects to meet local and regional needs for flood management, refine the conceptual system elements proposed in the adopted plan, and identify specific projects for construction.

As part of regional flood management planning, regional plans will be prepared with active participation by regional implementing, operating, and maintaining agencies; local land use agencies (counties and cities); agricultural and environmental interests; emergency responders; and tribes. This effort will collect on-the-ground information regarding flood risks and needs, identify local and regional improvement projects, assess the performance and feasibility of these projects, and develop plans that reflect the priorities of local entities in reducing flood risks in each of the nine regions identified in the CVFPP. Each plan will also assess proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. Development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts.

***G\_CFBF3-13***

As stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)).

The SSIA includes the supporting goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time. Under the SSIA, ecosystem

restoration opportunities are integral parts of flood system improvements, including projects for urban areas, small communities, and rural-agricultural areas. Integrating ecosystem restoration into these flood protection projects will focus on preserving important shaded riverine aquatic habitat along riverbanks and help restore the regional continuity/connectivity of such habitats. In addition, SSIA ecosystem restoration activities may include improving fish passage, increasing the extent of inundated floodplain habitat, creating opportunities to allow river meandering and other geomorphic processes, or other measures that may be identified during post-adoption activities. Potential effects on flood management and channel capacity will be considered during implementation of any ecosystem restoration actions. Post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, State and USACE permitting) will allow for detailed development and review of the conceptual ecosystem restoration targets described in the CVFPP and its attached Conservation Framework.

The integrity of the flood management system overall would be maintained over time, through adaptive management, which is one of the principles for conservation and flood management, as stated on page 4-3 of Volume 1, Attachment 2 of the CVFPP, and described in detail in Section 5.8 of Attachment 2.

**G\_CFBF3-14**

As stated in Master Response 5, State law (SB 5) requires each city and county in the Sacramento–San Joaquin Valley to amend its general plan within 24 months of the Board’s adoption of the CVFPP (see CGC Sections 65302.9 and 65860.1) to include consistent information. These cities and counties must also amend their zoning ordinances accordingly within 36 months of the Board’s adoption of the CVFPP. Cities and counties could consider incorporating the following information from the CVFPP into their general plan amendments:

- Data and analyses contained in the CVFPP, such as the locations of the SPFC and other flood management facilities, locations of property protected by those facilities, and locations of flood hazard zones
- Goals, policies, and objectives based on the CVFPP’s data and analyses, for the protection of lives and property and reduction of the risks of flood damage
- Feasible implementation measures designed to carry out the goals, policies, and objectives

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The 2012 CVFPP was prepared at a conceptual level. Consequently, the plan does not include detailed floodplain mapping, data on local flood stages, or specifics about future on-the-ground projects. This information will be developed during post-adoption implementation activities. However, a great deal of information and data on Central Valley flood risks and vulnerabilities were collected as part of 2012 CVFPP development. DWR has provided much of this information in the attachments to the CVFPP and will make further information available to assist local agencies. For additional details, see Master Response 5.

***G\_CFBF3-15***

The comment is noted.

***G\_CFBF3-16***

The comment is noted.



# CALIFORNIA FARM BUREAU FEDERATION

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April 20, 2012

## G\_CFBF4

Mary Ann Hadden  
Staff Environmental Scientist  
DWR, DFM  
c/o MWH  
3321 Power Inn Road, Suite 300  
Sacramento, CA 95826

Re: Comments on the March 2012 CVFPP DPEIR

Dear Ms. Hadden:

G\_CFBF4-01

The California Farm Bureau Federation is a non-governmental, non-profit, voluntary membership California corporation whose purpose is to protect and promote agricultural interests throughout the state of California and to find solutions to the problems of the farm, the farm home and the rural community. Farm Bureau is California's largest farm organization, comprised of 53 county Farm Bureaus currently representing more than 74,000 agricultural, associate and collegiate members in 56 counties. Farm Bureau strives to protect and improve the ability of farmers and ranchers engaged in production agriculture to provide a reliable supply of food and fiber through responsible stewardship of California's resources.

Farm Bureau thanks the Department of Water Resources for the opportunity to offer these comments.

G\_CFBF4-02 Project Description

The PEIR fails to provide an adequate project description for the project. For proper impacts assessment and development of effective mitigation, an EIR must provide an accurate description of the project. Even in a programmatic EIR, this must be done by providing as much information as possible, based on information available to the preparing agency at the time the EIR is completed.

Here, both the Central Valley Flood Protection Plan itself and the PEIR describe the project in only the most general terms. Information found in certain technical appendices to Flood Plan show the Department in fact has much more specific information, for example,

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concerning the potential range, extent, and locations of potential significant impacts to agricultural resources, that are simply not addressed in either the Draft Flood Plan or the Draft PEIR. Moreover, there is information to suggest that the Department has significant information concerning specific or approximate geographic locations, acreages, footprints, flow and conveyance assumptions, and ecosystem restoration and mitigation plans and assumptions that the Department has not included, or clearly or adequately discuss in the main body of Flood Plan, or the PEIR.

G\_CFBF4-03

Burying the potential significant impacts of major features of a project in the technical appendices to an EIR—and perhaps even omitting other such key information from the EIR altogether—does not serve to adequately appraise the public of a projects potential impacts. Nor does it enable the public to accurately assess the adequacy or inadequacy of the EIR’s proposed mitigation measures.

G\_CFBF4-04

Because PEIR omits key information concerning known potential significant impacts of the project in the areas of agricultural resources, land use, hydrology, biological resources, socio-economic impacts, water supply, and cumulative impacts, the PEIR fails to meet the basic purposes of CEQA in this regard.

G\_CFBF4-05

#### Alternatives

CEQA requires the EIR to discuss a reasonable range of alternatives. A reasonable range of alternatives includes consideration of alternatives that could lessen or avoid potential significant adverse environmental impacts of the project, even if such an alternative might be more costly, more technologically difficult, or achieve only some or most of the project’s objectives, but not all.

Here, the planning process that produced the Draft Flood Plan and the four approaches or alternatives presented in the Plan analyzed in the PEIR identified some 94 individual management actions, grouped into 11 categories or types of actions, including a category for “additional floodplain and reservoir storage.”

The State Systemwide Improvements Approach alternative selected as the Department’s preferred alternative relies heavily on farmland inundation, setback levees, and new and expanded bypass areas to achieve increased system capacity. These actions, in turn, result in substantial adverse impacts agricultural lands and to the Central Valley’s important agricultural economy and rural areas.

These impacts could be lessened or avoided by an alternative that included additional flood space in expanded reservoirs. Instead, actions to increase flood control capacity by increase upstream surface water storage were entirely excluded from the SSIA.

G\_CFBF4-06

Reservoir expansion was considered as part of the Department’s “Enhanced Flood System Capacity” preliminary approach. However, this approach was not a realistic, or a



balanced one, whereas neither the SSIA, nor any other approach or alternative made any attempt to incorporate increased reservoir space as a potential alternative, to achieve must program objectives, while simultaneously avoiding or reducing significant adverse impacts in the areas of agricultural resources, land use, hydrology, biological resources, socio-economic impacts, water supply, and cumulative impacts.

G\_CFBF4-07 Because of the failure to consider a reasonable range of alternatives, the PEIR fails to satisfy the basic purposes of CEQA.

G\_CFBF4-08 Impacts Analyses and Mitigation Measures

As noted, due to the failure to include an adequate project description, the PEIR fails to properly disclosure or analyze potential significant environmental impacts in the areas of agricultural resources, land use, hydrology, biological resources, socio-economic impacts, water supply, and cumulative impacts. Similarly, as a result of the failure to include an adequate project description and to properly disclose and analyze the project's potential significant adverse environmental impacts, the PEIR also fails to describe adequate mitigation measure for these same potential adverse environmental impacts.

G\_CFBF4-09 Cumulative Impacts

The PEIR fails to consider the potential adverse impacts to agricultural resources, land use, hydrology, water supply and local and regional economies which may foreseeably flow from many potential individual ecosystem restoration projects which may be undertaken over the 20 to 25 year lifetime of the project, when considered in combination with the ecosystem restoration activities contemplated as part of the project. Furthermore, the PEIR fails to adequate describe or adopt specific mitigation measures to reduce or avoid the potential cumulative direct and indirect impacts of all of these individual habitat projects over time.

G\_CFBF4-10 Biological Resources / Agriculture and Forestry Resources

Mitigation commitments in the PEIR and in the Flood Plan itself considered, especially, in connection with the Department recommended Vegetation Management Policy, suggest the potential for significant, additional impacts to agricultural resources. However, the PEIR makes no sufficient attempt to quantify this potential magnitude or extent of this impact, extrapolating from the known acreage of potentially affected vegetation, as compared to a potential range of required mitigation. The failure to assess this potential significant impacts renders the PEIR adequate to inform the public and satisfy the basic purposes of CEQA.

G\_CFBF4-11 Agricultural Resources, Mitigation

Regarding mitigation of impacts to agricultural resources, many of the CALFED ag mitigation measures relied upon, almost exclusively in the PEIR, are overally vague/not specific enough for specific types of impacts involved in the Central Valley Flood Plan.

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There is a need to consider additional agricultural mitigation measures in the areas of transitional assistance, retaining lands in production over time, ensuring compatibility and preventing encroachment of habitat-related uses over time, easements versus land acquisition, and avoiding impacts to permanent crops.

G\_CFBF4-12

Additional, mitigation for reclamation of borrow sites must take into account unique characteristics of soils for production of certain crops (e.g., clay pan soils for rice) and gauge mitigation specifically to preserve unique productive capabilities of agricultural lands to the maximum extent possible.

G\_CFBF4-13

California Farm Bureau Federation thanks you for the opportunity to comment on the March 2012 CVFPP DPEIR.

Yours truly,



Justin E. Fredrickson  
Environmental Policy Analyst

## California Farm Bureau Federation, Justin Fredrickson

### **Response**

#### **G\_CFBF4-01**

The comment provides a general description of the California Farm Bureau Federation. The comment does not raise specific questions or information regarding the CVFPP or the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

#### **G\_CFBF4-02**

As stated in Master Response 23 and as explained in the DPEIR, the environmental document for the CVFPP is a first-tier PEIR. A PEIR is “an EIR which may be prepared on a series of actions that can be characterized as one large project” and are related in specified ways (CEQA Guidelines Section 15168(a)). An advantage of using a PEIR is that it can “[a]llow the lead agency to consider broad policy alternatives and program wide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts” (CEQA Guidelines Section 15168(b)(4)). Accordingly, a PEIR is distinct from a project EIR, which is prepared for a specific project and must examine in detail site-specific considerations (CEQA Guidelines Section 15161).

Contrary to the assertions by several commenters, CEQA does not mandate that a first-tier PEIR identify with certainty the characteristics and impacts of second-tier projects that will be further analyzed before implementation during later stages of the program. Rather, identification of specific impacts is required only at the second-tier stage when specific projects are considered. Similarly, at the first-tier program stage, the environmental effects of potential future projects may be analyzed in general terms, without the level of detail appropriate for second-tier, site-specific review (CEQA Guidelines Sections 15146 and 15152). The CVFPP PEIR satisfies these requirements.

Certain commenters cited *CALFED Proceedings*, in support of their argument that a greater level of project detail was required in the CVFPP PEIR. In fact, the California Supreme Court’s decision on *CALFED Proceedings* fully validated DWR’s PEIR in that case, stating:

In addressing the appropriate amount of detail required at different stages in the tiering process, the CEQA Guidelines state that “[w]here a lead agency is using the tiering process in connection with an EIR for a large-scale planning approval, such as a general plan or component

thereof ..., the development of detailed, site-specific information may not be feasible but can be deferred, in many instances, until such time as the lead agency prepares a future environmental document in connection with a project of a more limited geographic scale, as long as deferral does not prevent adequate identification of significant effects of the planning approval at hand.” (Cal. Code Regs., tit. 14, § 15152, subd. (c).) This court has explained that “[t]iering is properly used to defer analysis of environmental impacts and mitigation measures to later phases when the impacts or mitigation measures are not determined by the first-tier approval decision but are specific to the later phases.” (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova*, *supra*, 40 Cal.4th at p. 431.)

*Id.* at 1170. A comparison of the EIR at issue in *CALFED Proceedings*, which is comparatively general, with the more detailed analysis contained in the CVFPP PEIR demonstrates that the standard articulated in *CALFED Proceedings* has been more than satisfied here.

Commenters also cited *Rio Vista Farm Bureau Center v. County of Solano* (1992) 5 Cal.App.4th 351 (*Rio Vista*); however, like *CALFED Proceedings*, that case upheld the adequacy of a program-level EIR that, like the CVFPP PEIR here, supported a program-level action that did not commit the agency to any future projects. Specifically, *Rio Vista* concerned the validity of a final EIR for a county’s hazardous waste management plan. The plan did not select any specific sites for hazardous waste disposal facilities, but instead merely designated certain areas within the county as being potentially consistent with the stated criteria for such a facility. Much like the argument made by the commenters here, at issue was whether the EIR was defective for failing to provide a sufficient project description or to sufficiently analyze the environmental impacts of, possible mitigation measures for, and project alternatives to constructing hazardous waste disposal facilities at identified potential sites. Rejecting the claim, the Court of Appeal stated: “The flaw in appellant’s argument is that the Plan makes no commitment to future facilities other than furnishing siting criteria and designating generally acceptable locations. While the Plan suggests that new facilities may be needed by the County, no siting decisions are made; the Plan does not even determine that future facilities will ever be built.” (*Id.* at 371.) The Court of Appeal added: “Where, as here, an EIR cannot provide meaningful information about a speculative future project, deferral of an environmental assessment does not violate CEQA.” (*Id.* at 373.)

Several commenters stated that DWR failed to disclose the full scope of the program, pointing to various analyses in the draft CVFPP and DPEIR of conceptual future projects, such as certain bypass expansions. However, these analyses simply implemented DWR’s obligation under CEQA’s “rule

of reason” to make reasonable forecasts necessary to support informed decision making and public participation at the program level. As in *Rio Vista*, the draft CVFPP and DPEIR carefully explained that no commitments are presently being made to future facilities such as bypass expansions. Instead, extensive technical and other analyses as well as public participation will precede any specific project proposals. For additional details, see Master Response 23.

Master Responses 1 and 2 provide additional information on the general nature of information provided in the CVFPP and PEIR. As stated in Master Response 1, expansion of the Sutter, Yolo, and Sacramento bypasses were identified as examples of increasing the overall capacity of the flood management system to convey and attenuate large flood events. The CVFPP is a high-level document that describes the State’s vision for a sustainable flood management system in the Central Valley. The SSIA is a responsible and balanced investment approach to achieve this vision. The CVFPP and its PEIR do not permit any specific actions to move forward that would be subject to further evaluation under CEQA. The CVFPP does not provide detailed project descriptions or funding assurances, nor does it preclude any future actions that could contribute to flood management goals.

Specific dimensions, capacities, and alignments for expanded and new bypasses have not been determined as part of the preliminary analyses conducted for the 2012 CVFPP. The analyses contained in the 2012 CVFPP are intended to be conceptual only; they were included as a basis for a program-level analysis that would allow broad comparisons of various flood management options. Potential locations and preliminary sizes described in the plan were identified using information obtained from previous studies and through discussions with local agencies and stakeholders.

Considerable additional work will be required before the bypass projects proposed in the plan are approved and implemented. Details about the dimensions, capacities, and alignments of expanded and new bypasses will be refined during post-adoption implementation activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these activities are conducted, the feasibility of proposed bypass elements will be evaluated and opportunities for public engagement and input will become available. For additional details see Master Response 1.

As stated in Master Response 2, the CVFPP does not provide detailed project descriptions or funding assurances, nor does it preclude any future actions that could contribute to the State's flood management goals. The 2012 CVFPP outlines a broad range of potential physical and institutional projects and actions to reduce flood risks. Some actions identified in the SSIA can be implemented within the existing footprint of the SPFC, while others will require new lands and/or easements. Because the SSIA was developed at a conceptual or program level, it does not identify any specific project; therefore, any lands or properties that may be needed to implement the plan are unknown at this time. Initial, preliminary planning-level analyses indicate that actions outlined in the SSIA (expansion of the bypass system; new bypasses; and levee reconstruction, including levee setbacks) could expand flood system lands by as much as 40,000 acres. However, this initial estimate will be refined during follow-on studies and further analysis conducted after adoption of the CVFPP. It is anticipated that land uses within any expansions of the flood management system would be a mix of flood facilities and agricultural and environmental conservation uses; however, the exact amount and geographical distribution of these land uses will require further analyses as future specific projects are considered and evaluated.

A portion of the lands and easements needed to implement the SSIA would support improvements to urban levees, but the majority (by surface area) would support floodway expansion and repair and/or reconstruction of levees in rural areas. For preliminary planning purposes, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. However, these preliminary planning estimates will be refined during subsequent project-level analyses. The actual needs for and uses of land will vary depending on the types and locations of specific flood system improvements.

The conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities.

The PEIR recognizes that converting lands from agricultural uses would result in potentially significant and unavoidable impacts, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA). Many commenters

expressed the view that such conversions should not occur, and that including such conversions in the SSIA undervalues agriculture as a primary industry in the Central Valley that provides a range of economic, social, habitat, and other benefits. Many commenters also explained that particular lands have been in family ownership for generations, often dating back to the earliest days of statehood. DWR and the Board respect these benefits and the relationships that many individuals have to any lands that might be converted, which are anticipated to be substantial topics during any project-level public engagement processes. However, the DPEIR has adequately addressed the environmental issues at a program level and no new significant environmental topics or information were raised in the comments.

**G\_CFBF4-03**

The comment that significant impact information or project description information was “buried” in a technical appendix is incorrect. Conceptual analysis of preliminary approaches used to assist in the development of the SSIA is included in the CVFPP attachments, which are included as appendices to the PEIR.

As stated in Master Response 9, three preliminary approaches were used to explore a range of potential physical changes to the existing flood management system and help highlight needed policies or other management actions: Achieve SPFC Design Flow Capacity, Protect High-Risk Communities, and Enhance Flood System Capacity. Evaluating these preliminary approaches provided information on their costs, benefits, and overall effectiveness. None of the three preliminary approaches were found to fully satisfy the legislative requirements and CVFPP goals in a cost-effective manner. However, the most promising elements of each were combined to formulate the State’s preferred approach—the SSIA. The CVFPP and accompanying attachments provide additional details about the formulation and screening of elements included in the SSIA. For additional details see Master Response 9. The CVFPP attachments referenced in the Master Response were included as appendices to the PEIR.

The documents in question consist of conceptual analyses of the three preliminary approaches identified above that required development of various assumptions and project scenarios to allow analysis and comparison. These include, among other documents, a *Plan Formulation Report* (CVFPP Vol. II) and a *Technical Analysis Summary Report* (CVFPP Vol. II, Att. 8) that looked at issues such as hydrology, reservoir operations, cost estimates, and groundwater related to the preliminary approaches. Any particular facilities or plan implementation scenarios identified in these reports resulted from the need to generate assumptions to allow meaningful analysis of the preliminary approaches. By allowing the

conceptual comparison of the costs and benefits of each preliminary approach, the most promising elements of each were combined to formulate the SSIA, which is the proposed program evaluated in the PEIR. Data related to SSIA formulation in the CVFPP attachments are not detailed information on the contents and impacts of the SSIA, but evidence of the deliberative process used to develop the SSIA.

**G\_CFBF4-04**

The comment provides no evidence or examples of the suggested omissions. The comment is noted. See responses to comments G\_CFBF4-02 and G\_CFBF4-03, above.

**G\_CFBF4-05**

As stated in Master Response 24, CEQA requires that an EIR, in addition to analyzing the environmental effects of a proposed project, consider and analyze project alternatives that would reduce adverse environmental impacts (PRC Section 21061; *CALFED Proceedings* at 1143, 1163).

Section 15126.6 of the CEQA Guidelines indicates that an EIR must “describe a range of reasonable alternatives to the project ... which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. ...” An EIR need not consider every conceivable alternative to a project or alternatives that are infeasible. (*Id.*; *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 574 (*Goleta*)). “In determining the nature and scope of alternatives to be examined in an EIR, the Legislature has decreed that local agencies shall be guided by the doctrine of ‘feasibility.’ ” *Id.* at 565. CEQA defines “feasible” as “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.” (PRC Section 21061.1; see also CEQA Guidelines Section 15364.)

“There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.” (CEQA Guidelines Section 15126.6(a).) The rule of reason “requires the EIR to set forth only those alternatives necessary to permit a reasoned choice” and to “examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project.” (CEQA Guidelines Section 15126.6(f).) An EIR does not have to consider alternatives “whose effect cannot be reasonably ascertained and whose implementation is remote and speculative.” (CEQA Guidelines Section 15126.6(f)(3).) Furthermore, “an EIR need not study in detail an alternative that is infeasible or that the lead agency has reasonably determined cannot achieve the project’s underlying



fundamental purpose.” (*CALFED Proceedings, supra*, at 1165 (citing and quoting *Goleta, supra*, at 574 (“a project alternative which cannot be feasibly accomplished need not be extensively considered”).) Further, “a lead agency may structure its EIR alternative analysis around a reasonable definition of underlying purpose and need not study alternatives that cannot achieve that basic goal.” (*CALFED Proceedings, supra*, at 1166.)

The DPEIR evaluated a reasonable range of alternatives (seven were considered and five received full analysis, and a sixth alternative is included in the FPEIR for the non-CEQA purpose of helping support a future vegetation variance application to USACE) (see Chapter 5.0, “Alternatives”). The DPEIR explained how additional alternatives were screened and the basis for eliminating some alternatives from more detailed consideration. The scope of the alternatives analysis in the DPEIR was sufficient to “foster informed decision making and public participation.” Attachment 7, “Plan Formulation Report,” in CVFPP Volume II provides additional information regarding the foundational development of alternatives presented in the DPEIR.

Several commenters specifically requested analysis of an alternative that includes the expansion or construction of new upstream reservoirs. As stated in Master Response 10, potential development of upstream storage facilities does not offer a feasible alternative to floodplain conveyance and/or storage in relation to the CVFPP. As a result, CEQA does not require that such an alternative be included.

Commenters also broadly criticized the level of detail in the analysis of the alternatives, without identifying specific information considered to have been inappropriately omitted. A review of the 142-page alternatives analysis in the DPEIR demonstrates that the alternatives were adequately described and the potential environmental impacts were comprehensively analyzed. The standard articulated in the CEQA Guidelines and case law has been more than satisfied. For additional details, see Master Response 24.

As stated in Master Response 10, in developing the CVFPP and formulating the SSIA, DWR considered various forms of storage for flood management, including operational changes to existing reservoirs with flood storage, new or expanded flood storage in reservoirs, and storage in floodplains. Specifically, one of the preliminary approaches—Enhance Flood System Capacity—included enlarging the flood storage allocation of several multipurpose reservoirs to improve management of flood risks on lands protected by the SPFC. This evaluation found potential benefits from and opportunities for reservoir flood storage and operational changes, such as improving flexibility in managing hydrologic changes (such as climate

change) and potentially offsetting the hydraulic effects of certain system improvements on downstream reaches. At the same time, these analyses addressed both the physical limitations of these opportunities and the potential negative effects of increasing flood-storage allocations on water supply and other beneficial uses. The analyses of reservoir storage and flood operations that were conducted in support of the 2012 CVFPP are described in Attachment 8B in Appendix A, “Central Valley Flood Protection Plan.”

Storage elements ultimately retained in the SSIA are based on preliminary systemwide analyses conducted for the 2012 CVFPP, legislative direction for the CVFPP, and the findings of prior and ongoing studies. Among those studies are ongoing surface storage investigations and prior local, State, and federal studies such as the Shasta Lake Water Resources Investigation, North-of-the-Delta Offstream Storage (Sites Reservoir), In-Delta Storage Program, Los Vaqueros Reservoir Expansion, and Upper San Joaquin River Basin Storage Investigation (Temperance Flat Reservoir). However, no new site-specific investigations of surface storage were included in the systemwide analyses conducted to support the 2012 CVFPP.

In the 2012 CVFPP, the SSIA includes coordinated reservoir operations aimed at making the most efficient and effective use of current flood storage allocations in existing reservoirs, and implementation of the authorized Folsom Dam Raise (see Section 3.5.4 of the CVFPP). These SSIA storage elements appropriately reflect the conceptual level of detail and systemwide focus of the 2012 CVFPP, without precluding future consideration of new or expanded storage by the State or local agencies. At this time, the SSIA does not include new reservoirs or expansion of storage (other than at Folsom Dam) solely for the purpose of flood management; however, DWR will continue to consider flood management in the context of, and as an objective of, its ongoing multi-benefit surface storage investigations and systemwide reoperation studies. Should these State investigations or other related efforts by local or federal agencies identify flood management as a component of a feasible reservoir storage project, this may be reflected in future updates to the CVFPP.

During the early and mid-20th century, most of the major rivers and tributaries draining into the Central Valley were dammed, providing both intentional and incidental flood management benefits. The aggregate benefit of these reservoirs to flood management has been substantial, and has contributed to the success of the existing flood system in reducing or avoiding damage from major flood events during the past century. However, California’s topography and geology limit opportunities for reservoir construction, and most of the feasible locations have already been

developed with the existing major dams (e.g., Shasta, Oroville, Folsom). The remaining opportunities are much more limited.

Specifically, unlike the situation that existed at the beginning of the 20th century, only a few remaining dam sites, spread throughout the Central Valley watersheds, offer the potential to provide large volumes of flood storage capacity. Other than for a few specifics, such as raising Shasta Dam or constructing Sites Reservoir, commenters on this topic did not provide a more detailed proposal or recommendation for implementing upstream storage projects. In particular, commenters provided no specific information regarding the feasibility of using an upstream-reservoir approach to meet the requirements of SB 5.

DWR recognizes the importance of developing additional water storage capacity in California to support an increasing population, to help compensate for the anticipated loss of snowpack storage as a result of climate change, and to maintain the important role of Central Valley agriculture for the nation and the world. For these reasons, multipurpose reservoir projects will likely continue to be proposed and, if successful, may help to meet needs for flood storage capacity.

However, these proposals face daunting challenges. Despite their benefits, new or expanded reservoirs generally face considerable opposition given their environmental effects, costs, perceived risks, and other factors. Also, environmental laws established mostly in the 1970s now apply to these proposals. Among these laws is the requirement under Section 404 of the CWA that any project affecting waters of the United States can be approved only if it is demonstrated to be the least environmentally damaging practicable alternative. Many other laws also present permitting challenges.

It is significant that no new major onstream reservoir has been constructed in the Central Valley watershed since New Melones Dam was completed in 1978. The Auburn Dam project, which commenced construction in 1968, was never completed because of several factors, including its cost, geologic problems with the site, and potential harm to recreational and ecological values. Recently, successful projects have consisted largely of projects to provide offstream storage (such as Los Vaqueros Reservoir), which can provide only limited flood control benefits outside their watersheds given the need for pumping, and projects to increase the capacity of existing reservoirs (which by their nature are only incremental).

Moreover, to serve as a substitute for floodway conveyance and storage, upstream reservoir capacity would have to be developed throughout the Central Valley watershed. The extreme weather events (i.e., atmospheric

ivers) that create the greatest risk of a severe flood are often localized. Floodplain storage protects against floodwaters originating from all upstream areas, but by definition, upstream reservoirs can store only the floodwaters that originate from a particular area or tributary watershed. For example, an increase in the capacity of Shasta Lake would provide little or no benefit in the event of a major atmospheric rivers event focused on the central or southern Sierra Nevada. There is simply no reasonable scenario under which an array of new reservoir projects spread throughout the Central Valley watershed would be feasible and could serve as an effective substitute for floodplain storage. Suitable and feasible remaining sites do not exist, the costs would likely be prohibitive and the opposition substantial, and environmental permits would be difficult if not impossible to obtain. It would be both speculative and imprudent for the CVFPP to rely on such an approach. None of the comments on the topic have addressed, much less rebutted, the substantial evidence that such an alternative could not feasibly meet the objectives of the CVFPP as directed by SB 5.

Failing to reserve adequate floodway conveyance and storage capacity now would leave future generations with limited options for addressing their flood protection needs. The current generation has benefited from the existing bypass system, and expanding that system would benefit both current and future residents. It is recognized that in certain cases and to some degree, upstream floodway conveyance and storage could reduce the need for (or scale of) some types of downstream flood management actions associated with the SPFC. However, opportunities to reduce flood risks on lands protected by the SPFC by increasing floodway conveyance and storage are limited, and depend on a variety of factors:

- The location of a reservoir (or multiple reservoirs) with respect to the downstream actions or target area is important. Multipurpose reservoirs are present along many major tributaries to the Sacramento and San Joaquin rivers, but the hydrology (magnitude of rainfall and timing of peak flows from a watershed) and the operations of these reservoirs are very complex. Floodflows in downstream reaches of mainstem rivers are often influenced by the operation of multiple reservoirs, and peak flood stages may result from a combination of hydrologic events on different tributaries. Consequently, increasing flood storage in one reservoir may not reduce peak flood stage along a mainstem river reach because of the operations of other reservoirs, contributions from unregulated streams, or hydrology of the various tributary watersheds.
- The volume of floodway conveyance and storage that could be achieved is related to the size of the watershed and floodflows it generates, which can limit the effectiveness of expanding reservoirs or

constructing new reservoirs. Expanding a reservoir is typically most effective when the existing reservoir has a small flood storage allocation compared with its tributary watershed. Similarly, it may not be effective to construct or expand a reservoir that controls a relatively small watershed.

- Opportunities to expand a reservoir are typically limited by the existing dam's location, size, and type of construction (concrete versus earthen, for example). A reservoir expansion sufficient to achieve the desired flood risk reduction benefits downstream may not be physically possible at all locations.
- The cost and potential impacts of enlarging a reservoir or constructing a new reservoir vary substantially from location to location. The CVFPP is a conceptual plan, and the PEIR is a program-level document; the site-specific analyses that would be needed to assess feasibility were not conducted as part of the CVFPP or PEIR, and will occur at the project level.
- Reservoir ownership varies, and studies of specific opportunities to expand reservoirs must be conducted in partnership with owners and operators.

The above factors indicate that a feasible and cost-effective surface-storage project could be developed only under specific circumstances, and that even if it is feasible, additional surface storage may not provide meaningful flood management benefits. These factors, combined with the conceptual systemwide focus of the 2012 CVFPP, precluded DWR from identifying specific reservoir storage elements to include in the SSIA at this time. These factors limited the ability to formulate an approach/alternative to include in the PEIR that focused primarily on increasing flood storage. Further, increasing storage alone would not achieve many of the CVFPP goals or fulfill legislative intent, such as improving ecosystem functions within the flood management system or achieving an urban level of flood protection for all urban areas.

Studies showed that combining bypass expansion, regional levee improvements, and coordinated operations in the SSIA did not result in systemwide hydraulic impacts that would be substantial enough to require including additional surface storage as a hydraulic mitigation measure. However, the plan does not preclude future consideration of new or additional flood storage by State, federal, or local agencies in the regional flood management planning or two basin feasibility studies, or as independent projects. (See Section 3.5.4 in Appendix A, "Central Valley Flood Protection Plan.") For additional details, see Master Response 10.

**G\_CFBF4-06**

See response to comment G\_CFBF4-05.

**G\_CFBF4-07**

See response to comment G\_CFBF4-05.

**G\_CFBF4-08**

The comment provides no evidence or examples of the suggested DPEIR deficiencies. The comment is noted. See responses to comments G\_CFBF4-02 and G\_CFBF4-03, above.

**G\_CFBF4-09**

The comment provides no evidence or examples of the suggested DPEIR deficiencies. Cumulative impacts of various projects and programs, including ecosystem restoration projects or projects/programs with an ecosystem restoration component (e.g., Natomas Basin Habitat Conservation Plan, BDCP, Butte Regional Conservation Plan) are addressed in DPEIR Chapter 4.0, "Cumulative Impacts." Projects considered in the cumulative analysis are listed in Section 4.3, "Related Projects," of the DPEIR. The comment is noted. See responses to comments G\_CFBF4-02 and G\_CFBF4-03, above.

**G\_CFBF4-10**

The DPEIR addresses the issue of loss of agricultural land related to program-related habitat creation. As stated in Impact AG-3 (NTMA), "Effects of Other NTMAs on Important Farmland and Williamson Act Contract Land" (DPEIR Section 3.3, "Agriculture and Forestry Resources"):

Integration of environmental conservation elements into NTMAs is designed to enhance habitat and restore natural ecosystem processes and functions. These elements would be developed to increase the quantity, quality, diversity, and connectivity of riparian, wetland, floodplain, emergent, and shaded riverine aquatic habitats. As a result, conversion of agricultural land to nonagricultural uses would result in some areas from implementation of these elements. This land would typically be placed under a conservation easement or some other mechanism would be used to preserve the habitat in perpetuity and, therefore, such land would no longer qualify as Important Farmland if it previously had that designation. This land also would not be eligible for Williamson Act contracts.

In addition, as stated in the introduction to Mitigation Measure AG-1c (NTMA), "Establish Conservation Easements Where Potentially

Significant Agricultural Land Use Impacts Remain after Implementation of Mitigation Measures AG-1a (NTMA) and AG-1b (NTMA)” (DPEIR Section 3.3, “Agriculture and Forestry Resources”):

As discussed in Mitigation Measures AG-1a (NTMA) and AG-1b (NTMA), in general, where there is a reduction or termination of agricultural activities to undertake flood protection, environmental protection, or other conservation measures, project proponents should consider other measures before considering purchasing easements or other measures of compensation (collectively referred to as “easements” below).

Mitigation Measures AG-1a (NTMA), AG-1b (NTMA), and AG-1c (NTMA) are identified as measures to avoid, minimize, and compensate for impacts on agricultural resources. These mitigation measures also are applied to Impact AG-3 (LTMA) and Impact AG-1 (NTMA and LTMA), “Conversion of Substantial Amounts of Important Farmland to Nonagricultural Uses” and “Conversion of Land under Williamson Act Contracts to an Inconsistent Use Resulting from Conveyance-Related Management Activities.” Therefore, these mitigation measures to avoid, minimize, and compensate for impacts on agricultural resources would apply to virtually all CVFPP ground-disturbing activities, including the creation of habitat included as mitigation for a specific project.

See response to comment G\_CFBF4-02, above, regarding quantification of impacts.

**G\_CFBF4-11**

As stated in Master Response 23, commenters also criticized the fact that several mitigation measures in the DPEIR contemplate flexible application at the project level, and that some of those measures are qualified by their future feasibility at the project level. However, because of the broad range of actions that could occur under the CVFPP, this flexibility is not only appropriate, but necessary, because not all measures will be appropriate or feasible in all situations (CEQA Guidelines Section 15168(c)(3)). The CVFPP discusses implementation measures at a program level. Specific actions that may be implemented after adoption of the CVFPP will be evaluated to determine the applicability and feasibility of specific measures in the particular project-level context. For additional details, see Master Response 23.

Regarding other elements of mitigation raised in the comment, transitional assistance is addressed in Mitigation Measure LU-5a (NTMA and LTMA), “Provide Financial Compensation for Property Loss and Relocation Assistance to Compensate for the Removal and Displacement of

Residential Land Uses,” included in Section 3.14, “Land Use,” of the DPEIR.

Retaining lands in production over time and avoiding impacts on permanent crops are addressed in Mitigation Measure AG-1a (NTMA and LTMA), such as “Site projects and project footprints to minimize the permanent conversion of Important Farmland to nonagricultural uses” (would apply to all types of crops, including “permanent crops”) and “Maximize contiguous parcels of agricultural land of a size sufficient to support their efficient use for continued agricultural production.”

The comment regarding “easements versus land acquisition” as a mitigation measure for conversion of agricultural land to another use is unclear. As stated in Master Response 2, the SSIA includes State investments in agricultural conservation easements, which involves working with willing landowners where easements would be consistent with local land use plans. These easements would be used to preserve agriculture and prevent urban development in current agricultural areas, discouraging conversion to land uses that would increase flood risks within floodplains protected by SPFC facilities. Agricultural conservation easements could be purchased through various DWR programs; an example is DWR’s Flood Corridor Program, which focuses on nonstructural flood risk reduction integrated with protection of natural resources and agricultural lands. For additional details, see Master Response 2. This program is consistent with and could support implementation of Mitigation Measure AG-1c.

Because the locations of future ecosystem restoration efforts conducted as part of the CVFPP are not known at this time, the issue of compatibility of ecosystem restoration and adjacent land uses is speculative. Details regarding compatibility of habitat and adjacent land uses will be addressed as needed, as plan implementation proceeds. However, little potential is apparent for meaningful conflicts between habitat created as part of the plan and existing agricultural uses. Where DWR, the Board, or others create habitat, the land would be part of a specific project and owned in fee title by an appropriate agency to preserve and maintain the habitat. Where this habitat is in an expanded floodway, DWR or another appropriate agency would own the surrounding land in the floodway in fee title, and land would be leased for agricultural production as appropriate. In this circumstance, the habitat would not conflict with continuing nearby agricultural operations owned by a private entity. If habitat were created on the edge of an existing or expanded floodway, typically a levee and associated maintenance easements would separate the habitat from any privately held agricultural land on the landside of the levee, minimizing the



potential for conflicts between sensitive species that might occupy the habitat and agricultural operations.

**G\_CFBF4-12**

As shown in Chapter 4.0, “Errata,” text has been added to Mitigation Measure AG-1a (NTMA) of the DPEIR to indicate that mitigation for reclamation of borrow sites will take into account the potential unique characteristics of soils for production of certain crops (e.g., clay pan soils for rice).

**G\_CFBF4-13**

The comment makes closing remarks that do not raise specific questions or information regarding the CVFPP or the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.



# CALIFORNIA FARM BUREAU FEDERATION

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## **G\_CFBF5**

### **PRELIMINARY SUGGESTIONS ON DRAFT CENTRAL VALLEY FLOOD PROTECTION PLAN**

#### **(FOR APRIL 2012 PUBLIC MEETINGS)**

Members of the Board:

The California Farm Bureau Federation offers the following suggestions in connection with the Central Valley Flood Protection Board's April 2012 public hearings on the Draft Central Valley Flood Protection Plan ("Flood Plan"). Detailed comments on both the Flood Plan and the Programmatic EIR will follow on or before the April 20, 2012, deadline for written comments. Thank you for considering the following as the Board reviews and considers potential revisions to the draft plan.

G\_CFBF5-01

#### **Treatment Of Agricultural And Rural Areas**

- Affirm and Protect Central Valley Agriculture
- Avoid, Minimize, Mitigate Agricultural Impacts
- Retain Agricultural Uses Long-term; Ensure Compatibility with Habitat
- Develop a Formal Rural Levee Standard
- Support FEMA NFIP Reform for Rural Areas
- Anticipate and Avoid Redirected Impacts and Unintended Consequences

G\_CFBF5-02

#### **Working With Local Interests**

- Improve Transparency and Public Outreach, Both Now and In Regional Planning
- Inform and Meaningfully Involve Local Interests
- Design Governance to Promote and Integrate Local Input in the Regional Planning and Implementation Phases of the Plan
- Draw on Local Knowledge, Insight, and Expertise
- Partner with Locals for Local Benefits and Greater Potential Local Buy-In
- Better Explain the Linkages Between the Flood Plan and the Obligations of Local Land Use Under SB 5, and the State's Expected Approach to This Aspect of Plan Implementation

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**Financing**

- Include Hard Commitments of Available Funds to No-Regrets, Priority Rural Levee Fixes Early On
- The Plan's Proposed 25 Percent Rural and Small-Community Cost Share is Too High
- Develop a Lower Rural Cost Share and Allow In-Kind Cost-Sharing by Local Flood Agencies in Rural Areas
- Preserve and Maintain Agricultural Production and Private Ownership of Lands in the Floodways to Reduce Maintenance Costs and Protect the Local Tax and Assessment Base
- Urban and Urbanizing Areas Benefitting from Lower Protection in Rural Areas Should Pay Proportionately for Plan Components
- Invest In-Hand Dollars in a Rural Planning, Response, and Recovery Fund

**Planning and Managing Habitat**

- Develop and Require Financing Mechanisms, Adequate Institutional Structures for Long-term Management of Habitat
- Analyze and Mitigate Potential, Long-term Cumulative Impacts of On-going Habitat Restoration System-wide
- Require Buffers, ESA Safe Harbor or Equivalent Protections, and Other Landowner Assurances
- Time Controlled Floodplain Inundation to Ensure Compatibility with On-going Agricultural Land Uses
- Coordinate Flood Improvements and Habitat as Integrated Parts under a Single Plan
- Streamline Permitting and Develop Better, More Comprehensive and Effective Approaches to Mitigation for Flood Projects and Species Alike
- Define, Then "Cap" Habitat Allotments; Thereafter, Respect and Maintain Alloted Habitat Areas Over Time As a Function of Total Flow Capacity

**Addressing The Impacts Of Taking Or Impacting Agricultural Lands**

- Protect the Local Tax Base and Reduce Maintenance Costs by Farming the Bypasses
- Adopt Policy Favoring Voluntary Actions Before Easements, Easements Before Acquisition, and Willing Seller Acquisitions Before Condemnation
- Directly Compensate Rural Landowners for Increased Risks and Losses to Provide Public Benefits Downstream
- Take or Acquire Private Lands Only After Exhaustion of All Feasible Alternatives
- Take No More Than the Least Interest Necessary to Achieve a Particular Public Purpose (The Greatest Public Good at the Least Private Cost Possible).

- Prescribe Procedures, Protections, and Transitional Assistance for Displaced Agriculture
- Describe Specific Land Acquisition, Farming Preservation, Habitat Management and Financing Mechanisms That Would or Could Be Used In Plan Implementation

G\_CFBF5-06 **Finalizing the Plan**

- Extend the July 1st Legislative Deadline for Plan Adoption: Getting the Plan Right Is More Important Than Meeting a Deadline
- The Plan As a Whole Should Seek Throughout to Provide Better Answers to Questions Like These, Concerning Precisely What the Plan Is and Is Not:
  - a. What, Specifically, Is the Plan Deciding or Determining Now?
  - b. What Specific Elements and Features of the Plan Could Change, or Come Out of the Plan After Adoption?
  - c. What, Specifically, Will We Decide Later, When, and How?
- Adopt a Plan That Is General and Open for Now, Purposely Leaving Flexibility and Room in the Plan to Adopt, Modify, and Possibly Abandon Projects and Plan Features Later On
- Plan Development in Regional Planning Should Be a Bottom-Up, Not a Top-Down Process
- Better Describe Phased Implementation and Prioritization of Proposed Elements and Features of the Plan
- Focus on Realistic Financing Options, Pacing, Phasing, and Prioritizing Plan Implementation Accordingly

Please direct any questions or concerns regarding this matter to Chris Scheuring at (916) 561-5660 or [cscheuring@cfbf.com](mailto:cscheuring@cfbf.com), or Justin Fredrickson at (916) 561-5673 or [jfredrickson@cfbf.com](mailto:jfredrickson@cfbf.com).

**California Farm Bureau Federation, Office of the General Counsel**

**Response**

**G\_CFBF5-1**

Responses are provided to the list of bulleted items in the comment.

**Treatment of Agricultural and Rural Areas**

- **Affirm and Protect Central Valley Agriculture**—As stated in Master Response 3, the PEIR prepared for the CVFPP includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) on pages 3.3-34 and 3.3-35 of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed.
- **Avoid, Minimize, Mitigate Agricultural Impacts**—See response immediately above.
- **Retain Agricultural Uses Long-term; Ensure Compatibility with Habitat**—As stated in Master Response 3, all areas protected by the SPFC would benefit from State investments included in the SSIA to improve residual risk management, such as enhanced flood emergency preparedness, response, and recovery. The SSIA also proposes State investments to preserve agriculture and discourage urban development in rural floodplains (e.g., purchasing agricultural easements from willing landowners, when consistent with local land use planning). In addition, the SSIA proposes FEMA flood insurance reforms to support the sustainability of rural-agricultural enterprises.
- **Develop a Formal Rural Levee Standard**—As stated on page 4-10 in Section 4.1.4 of the 2012 CVFPP, the State supports developing a levee repair standard for rural-agricultural areas, in coordination with local and regional flood management agencies. While the Urban Levee Design Criteria should be applied when the consequences of failure may result in significant loss of life or billions of dollars in damages in

an urban area, implementing levee improvements or repairs to meet this standard requires an enormous financial investment that is difficult to justify in rural-agricultural areas.

As stated in Master Response 4, State law (SB 5) requires an urban level of flood protection for urban and urbanizing areas within the Sacramento–San Joaquin Valley so that these areas will withstand a 1-in-200-year flood event (CGC Sections 65865.5, 65962, and 66474.5). Under the terms of SB 5, adoption of the 2012 CVFPP by the Board would trigger the schedule of compliance actions required for cities and counties to make findings related to an urban level of flood protection. However, the CVFPP does not create any new requirements or assurances for levels of flood protection in the Central Valley; the local findings requirements regarding the required levels of protection were established by the State Legislature with the passage of SB 5. Similarly, the plan does not change existing State requirements related to new development in nonurbanized areas, including small communities, which must continue to meet the national FEMA standard of flood protection (per CGC Sections 65865.5, 65962, and 66474.5). This national standard corresponds to the minimum level of flood protection (100-year flood) required for participation in the NFIP, and is consistent with the existing Building Code. SB 5 further clarifies that the CVFPP is a descriptive document, and neither the development nor the adoption of the CVFPP constitutes a commitment by the State to provide any particular level of flood protection (CWC Sections 9603(a) and 9603(b)).

- **Support FEMA NFIP Reform for Rural Areas**—As stated in Master Response 3, the State supports efforts to reform FEMA’s NFIP to more equitably reflect corresponding flood risks, including establishing a flood zone for agriculturally based communities to allow replacement of existing structures or reinvestment development in the floodplain. The State also supports identifying a special, lower-premium rate structure that reflects actual flood risks for agricultural buildings in rural-agricultural areas located in Special Flood Hazard Areas. The State will work with local flood management interests to pursue reform of the FEMA NFIP.
- **Anticipate and Avoid Redirected Impacts and Unintended Consequences**—As stated in Master Response 12, the State is sensitive to the potential effects of repairs or improvements to SPFC facilities that may result in redirected hydraulic impacts upstream or downstream from these facilities, and is developing more detailed policies to minimize and mitigate potential impacts. Based on current evaluations (see Section 3.13, Attachment 8C, “Riverine Channel Evaluations,” and

Attachment 8D, “Estuary Channel Evaluations,” in Appendix A, “Central Valley Flood Protection Plan”), implementing the SSIA as a whole would not result in adverse systemwide hydraulic effects, including any in the Delta. Peak floodflows may increase slightly (over current conditions) in certain reaches, but the expansion of conveyance capacity proposed in the SSIA would attenuate flood peaks and result generally in reduced peak flood stages throughout the system.

Future feasibility studies are needed to refine the proposed elements of the SSIA, and the ultimate configuration of facilities may vary from those presented in the 2012 CVFPP. Only at that time will the State have project-specific modeling results that indicate the specific magnitude and extent of hydraulic impacts, if any, from planned improvements within the system. Cost estimates for the SSIA in the 2012 CVFPP include an allowance for features to mitigate potential significant hydraulic impacts caused by project implementation.

The issue of potentially redirecting hydraulic impacts is also addressed in Section 3.13, “Hydrology,” in the DPEIR under Impact HYD-2 (NTMA), Impact HYD-4 (NTMA), Impact HYD-2 (LTMA), and Impact HYD-4 (LTMA). As indicated in these impact discussions, any project proponent implementing a project consistent with the SSIA that would affect flood stage elevations would need to obtain various applicable permits before project implementation (such as Section 408 and 208.10 authorization from USACE and encroachment permits from the Board). The project proponent would need to analyze the potential for the project to locally impede flow or transfer flood risk by causing changes in river velocity, stage, or cross section. Projects would not be authorized if changes in water surface elevation, and thus flooding potential, would increase above the maximum allowable rise set by these agencies. If the design of a project would result in an unacceptable increase in flooding potential, a project redesign or other mitigation would be required to meet agency standards before the project could be authorized and implemented.

***G\_CFBF5-2***

Responses are provided to the list of bulleted items in the comment.

**Working with Local Interests**

- **Improve Transparency and Public Outreach, both Now and In Regional Planning**—As stated in Master Response 14, DWR will engage regional flood planning partners to develop and implement communication strategies with broad interest groups to brief them on flood management planning in their regions. Regional implementing and operating agencies, land use agencies, and interest groups will be

invited to participate in the planning process. Each regional planning process will seek input, as appropriate, from agricultural interests, environmental interests, permitting agencies/resource agencies, local emergency responders, tribes, and other stakeholders. DWR anticipates that a regional flood working group will be formed in each region. For additional details, see Master Response 13 regarding outreach and engagement, and Master Response 14 regarding post-adoption regional planning processes and basin-wide feasibility studies.

- Inform and Meaningfully Involve Local Interests—See response immediately above.
- Design Governance to Promote and Integrate Local Input in the Regional Planning and Implementation Phases of the Plan—See response to the first bullet above.
- **Draw on Local Knowledge, Insight, and Expertise**—See response to first bullet above; local knowledge, insight, and expertise will be important in the regional planning process.
- **Partner with Locals for Local Benefits and Greater Potential Local Buy-In**—As stated in Master Response 13, a multiphase public engagement planning process informed development of the 2012 CVFPP and provided many different venues for communicating and engaging with a broad range of partners and interested parties. This extensive public engagement process for plan development, which began in January 2009, involved about 450 people representing public agencies, businesses, interest-based organizations, and members of the public. The process included nearly 300 meetings and more than 40 publications, in addition to development of a public Web site and webinars. A full list of participants and forms of engagement in plan development are available in Attachment 5, “Engagement Record,” in Appendix A, “Central Valley Flood Protection Plan.” The participants in the engagement process assisted DWR in identifying problems, developing CVFPP goals, identifying the range of management actions to consider in the CVFPP, and reviewing and commenting on the draft content of the CVFPP. For additional details, see Master Response 14.
- Better Explain the Linkages Between the Flood Plan and the Obligations of Local Land Use under SB 5, and the State’s Expected Approach to This Aspect of Plan Implementation—As stated in Master Response 5, State law (SB 5) requires each city and county in the Sacramento–San Joaquin Valley to amend its general plan within 24 months of the Board’s adoption of the CVFPP (see CGC Sections 65302.9 and 65860.1) to include consistent information. These cities



and counties must also amend their zoning ordinances accordingly within 36 months of the Board's adoption of the CVFPP.

**G\_CFBF5-3**

Responses are provided to the list of bulleted items in the comment.

**Financing**

- **Include Hard Commitments of Available Funds to No-Regrets, Priority Rural Levee Fixes Early On**—As stated in Master Response 3, the State recognizes potential regional differences in the capacity to pay for flood system improvements and O&M. The CVFPP proposes working with rural interests to develop appropriate criteria for rural levee repairs to cost-effectively address known problems (see CVFPP Sections 3.4.1 and 4.1.4). Furthermore, the plan proposes reviewing O&M roles and responsibilities for SPFC facilities and forming regional maintenance authorities, as appropriate, in the interest of improving maintenance efficiency and more equitably distributing system maintenance costs to beneficiaries. For example, DWR has developed cost-sharing guidelines to promote multiobjective projects and to provide additional financial support for economically disadvantaged areas ([http://www.water.ca.gov/floodsafe/docs/Cost\\_Sharing\\_Formula\\_12-29-10\\_Final.pdf](http://www.water.ca.gov/floodsafe/docs/Cost_Sharing_Formula_12-29-10_Final.pdf)).
- The Plan's Proposed 25 Percent Rural and Small-Community Cost Share is Too High—See response immediately above.
- Develop a Lower Rural Cost Share and Allow In-Kind Cost-Sharing by Local Flood Agencies in Rural Areas—See response to the first bullet above.
- Preserve and Maintain Agricultural Production and Private Ownership of Lands in the Floodways to Reduce Maintenance Costs and Protect the Local Tax and Assessment Base—As stated in Master Response 2, in addition to expansion of the bypass system, levee reconstruction, and other elements, the SSIA includes State investments in agricultural conservation easements, which involves working with willing landowners where easements would be consistent with local land use plans. These easements would be used to preserve agriculture and prevent urban development in current agricultural areas, discouraging conversion to land uses that would increase flood risks within floodplains protected by SPFC facilities. Agricultural conservation easements could be purchased through various DWR programs; an example is DWR's Flood Corridor Program, which focuses on nonstructural flood risk reduction integrated with protection of natural resources and agricultural lands.

- **Urban and Urbanizing Areas Benefitting from Lower Protection in Rural Areas Should Pay Proportionately for Plan Components—**  
As stated in Master Response 15, as part of CVFPP implementation, the regional planning process will gather DWR, the Board, and local interests (flood management agencies, land use agencies, flood emergency responders, permitting agencies, environmental and agricultural interests, and other stakeholders) to develop regional plans that will include lists of prioritized projects and funding strategies for each of the nine regions identified in the CVFPP. In a parallel effort, a systemwide planning process will refine the basin-specific objectives (Sacramento and San Joaquin basins) identified in the 2012 CVFPP. The most promising system elements will be combined with the prioritized list of regional elements identified in the regional plans to form SSIA “alternatives” for further evaluation in two basin-wide feasibility studies, one in the Sacramento River Basin and one in the San Joaquin River Basin.

Also, as stated in Master Response 3, under the SSIA, many small communities would receive increased flood protection benefits as a result of system improvements focused on protecting nearby urban areas. For example, levee improvements may be constructed upstream from an urban area to prevent a scenario in which floodwaters from an upstream levee breach would flow down gradient into the urban area. The upstream levee improvement that may extend into rural locations would therefore also reduce flood risks for the rural area immediately adjacent to the improved levee segment.

- Invest In-Hand Dollars in a Rural Planning, Response, and Recovery Fund—See response immediately above.

#### ***G\_CFBF5-4***

Responses are provided to the list of bulleted items in the comment.

#### **Planning and Managing Habitat**

- **Develop and Require Financing Mechanisms, Adequate Institutional Structures for Long-term Management of Habitat—**  
As stated in Master Response 15, SB 5 does not commit the State to any specific level of flood protection, action, prioritization, or funding (see CWC Section 9603). In recognition of current funding limitations, State investments under the SSIA would be prioritized commensurate with risks to people and property and opportunities to achieve multiple benefits. Consequently, State investments under the 2012 CVFPP would vary from region to region, depending on the assets at risk (people, property, and infrastructure) and severity of flood risk

(frequency and depth). However, most areas protected by the SPFC would realize flood risk management benefits under the SSIA.

Propositions 1E and 84 approved \$4.9 billion for statewide flood management improvements. Up to \$3.3 billion is allocated to improvements in the Central Valley (i.e., flood protection for areas protected by SPFC facilities). DWR invested approximately \$1.6 billion of the bond funds between 2007 and 2011 (along with about \$490 million in local investments and \$780 million in federal investments), conducting emergency repairs, early-implementation projects, and other improvements. Up to \$1.7 billion of additional bond funding will be available during the next 5 years for CVFPP-related projects. Use of bond funds will be prioritized based on the severity of flood risks, considering proposed project costs and benefits and contributions to basin-wide solutions (consistent with the CVFPP).

The current available bond funding is insufficient to implement the entirety of the recommended SSIA. After the Board adopts the CVFPP, DWR will create a financing plan for potential legislative actions to fund the next increment of capital improvements, O&M, and residual risk management activities for the CVFPP. The CVFPP Financing Plan will be informed by other post-adoption activities, including regional and basin-wide planning.

Flood management projects are typically cost-shared among federal, State, and local government agencies. Under existing federal law, the federal cost-share for construction may be 50–65 percent of the total project cost, depending on the amount of lands, easements, rights-of-way, and relocations necessary for the project. In recent years, many federally authorized projects and studies have not been adequately funded by the federal government.

Under State law, the State cost-share for federal flood projects is currently between 50 and 70 percent of the nonfederal share of the project costs, depending on the project's contributions to multiple objectives. After the passage of Proposition 84 and Proposition 1E, DWR developed interim cost-sharing guidelines for flood projects where the federal government is not currently sharing in the project costs. The State cost-share under these guidelines may range from 50 to 90 percent, depending on the project's contribution to multiple objectives and the degree to which the local area may be economically disadvantaged. Although the State currently has bond funds available for some flood projects, funding at this level may be unsustainable. Insufficient State funds are available to implement all of the SSIA. The

CVFPP Financing Plan will address these cost-share formulas and potential new sources of funds to pay the capital costs.

The Conservation Framework (Appendix E to the CVFPP) provides an institutional structure for long-term habitat management.

- **Analyze and Mitigate Potential, Long-term Cumulative Impacts of On-going Habitat Restoration System-wide**—The integrity of the flood system overall would be maintained over time through adaptive management, which is one of the principles for conservation and flood management, as stated on page 4-3 in Attachment 2, “Conservation Framework,” in Appendix A, “Central Valley Flood Protection Plan,” and described in detail in Section 5.8 of Attachment 2. CEQA Guidelines require analysis of all environmental cumulative impacts and feasible mitigation for any considerable incremental contributions to significant cumulative impacts, as addressed in Chapter 4.0, “Cumulative Impacts,” in the DPEIR.
- **Require Buffers, ESA Safe Harbor or Equivalent Protections, and Other Landowner Assurances**—As stated on page 1-18 of the 2012 CVFPP, Regulatory coverage under the federal ESA and the CESA will be needed for a broad range of flood system management activities. Flood management, resource, and regulatory agencies will need to continue to work together to apply the most appropriate mechanisms for given areas and types of work from the variety of tools available (e.g., HCPs, incidental take authorizations, safe harbor agreements). For additional details regarding agricultural land conservation and effects, see Section 4.2.5 in Attachment 2, “Conservation Framework,” in Appendix A, “Central Valley Flood Protection Plan,” and see Master Response 2.
- **Time Controlled Floodplain Inundation to Ensure Compatibility with On-going Agricultural Land Uses**—As stated in Master Response 12, several factors would be considered in the design and operation of bypass improvement elements: existing land uses, hydraulic considerations, ecosystem restoration features and benefits (including conservation and restoration of aquatic and floodplain habitats), and continued compatible agricultural land uses within the bypass. These future design considerations may include assessments of the seasonal timing, spatial extent, depth/velocity, and duration of floodplain inundation and the associated compatibility of agricultural crops and/or farming practices.
- **Coordinate Flood Improvements and Habitat as Integrated Parts under a Single Plan**—As stated in Master Response 7, SB 5 sets

legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)).

The SSIA includes the supporting goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time. Under the SSIA, ecosystem restoration opportunities are integral parts of flood system improvements, including projects for urban areas, small communities, and rural-agricultural areas. Integrating ecosystem restoration into these flood protection projects will focus on preserving important shaded riverine aquatic habitat along riverbanks and help restore the regional continuity/connectivity of such habitats. In addition, SSIA ecosystem restoration activities may include improving fish passage, increasing the extent of inundated floodplain habitat, creating opportunities to allow river meandering and other geomorphic processes, or other measures that may be identified during post-adoption activities. Potential effects on flood management and channel capacity will be considered during implementation of any ecosystem restoration actions. Post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, State and USACE permitting) will allow for detailed development and review of the conceptual ecosystem restoration targets described in the CVFPP and its attached Conservation Framework.

- Streamline Permitting and Develop Better, More Comprehensive and Effective Approaches to Mitigation for Flood Projects and Species Alike—As stated in Master Response 14, the Board has review and permitting authority under the California Water Code and CCR Title 23 for any project, including those resulting from the CVFPP, that may encroach upon, improve, alter, or affect adopted plans of flood control (including the State-federal flood management systems, regulated streams, and designated floodways under the Board’s jurisdiction and, as stated in Master Response 19, a supporting objective of the CVFPP is to reduce systemwide maintenance and repair requirements by modifying the flood management systems in ways that are compatible with natural processes, and adjust, coordinate, and streamline regulatory and institutional standards, funding, and practices for operations and maintenance, including significant repairs. DWR is

involved in the Regional Advanced Mitigation Planning workgroup and the Small Erosion Repair Program, which are two methods to streamline permitting approaches to mitigate for flood projects and species alike.

- Define, then “Cap” Habitat Allotments; thereafter, Respect and Maintain Allotted Habitat Areas over Time as a Function of Total Flow Capacity—As stated in Master Response 2, the 2012 CVFPP outlines a broad range of potential physical and institutional projects and actions to reduce flood risks. Some actions identified in the SSIA can be implemented within the existing footprint of the SPFC, while others will require new lands and/or easements. Because the SSIA was developed at a conceptual or program level, it does not identify any specific project; therefore, any lands or properties that may be needed to implement the plan are unknown at this time. Initial, preliminary planning-level analyses indicate that actions outlined in the SSIA (expansion of the bypass system; new bypasses; and levee reconstruction, including levee setbacks) could expand flood system lands by as much as 40,000 acres. However, this initial estimate will be refined during follow-on studies and further analysis conducted after adoption of the CVFPP. It is anticipated that land uses within any expansions of the flood management system would be a mix of flood facilities and agricultural and environmental conservation uses; however, the exact amount and geographical distribution of these land uses will require further analyses as future specific projects are considered and evaluated.

#### **G\_CFBF5-5**

Responses are provided to the list of bulleted items in the comment.

#### **Addressing the Impacts of Taking or Impacting Agricultural Lands**

- **Protect the Local Tax Base and Reduce Maintenance Costs by Farming the Bypasses**—As stated in Master Response 3, several factors would be considered in the design and operation of bypass improvement elements: existing land uses, hydraulic considerations, ecosystem restoration features and benefits (including conservation and restoration of aquatic and floodplain habitats), and continued compatible agricultural land uses within the bypass.

The PEIR prepared for the CVFPP includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) on pages 3.3-34 and 3.3-35 of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to

nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed. For additional details, see Master Response 6 regarding existing system maintenance.

As stated in Master Response 2, a portion of the lands and easements needed to implement the SSIA would support improvements to urban levees, but the majority (by surface area) would support floodway expansion and repair and/or reconstruction of levees in rural areas. For preliminary planning purposes, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. However, these preliminary planning estimates will be refined during subsequent project-level analyses. The actual needs for and uses of land will vary depending on the types and locations of specific flood system improvements.

The conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified. The CVFPP states the preference to work with willing landowners for needed land acquisitions. All land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable.

In addition to expansion of the bypass system, levee reconstruction, and other elements, the SSIA includes State investments in agricultural conservation easements, which involves working with willing landowners where easements would be consistent with local land use

plans. These easements would be used to preserve agriculture and prevent urban development in current agricultural areas, discouraging conversion to land uses that would increase flood risks within floodplains protected by SPFC facilities. Agricultural conservation easements could be purchased through various DWR programs; an example is DWR's Flood Corridor Program, which focuses on nonstructural flood risk reduction integrated with protection of natural resources and agricultural lands.

- Directly Compensate Rural Landowners for Increased Risks and Losses to Provide Public Benefits Downstream—See response to bullet immediately above.
- Take or Acquire Private Lands Only after Exhaustion of All Feasible Alternatives—See response to the first bullet above.
- Take No More than the Least Interest Necessary to Achieve a Particular Public Purpose (The Greatest Public Good at the Least Private Cost Possible)—See response to the first bullet above.
- Prescribe Procedures, Protections, and Transitional Assistance for Displaced Agriculture—See response to the first bullet above.
- Describe Specific Land Acquisition, Farming Preservation, Habitat Management and Financing Mechanisms that Would or Could Be Used in Plan Implementation—See response to the first bullet above.

Regarding specific implementation actions, as stated in Master Response 2, the CVFPP is a high-level document that describes the State's vision for a sustainable flood management system in the Central Valley. The SSIA is a responsible and balanced investment approach to achieve this vision. The CVFPP and its PEIR do not permit any specific actions to move forward that would be subject to further evaluation under CEQA. The CVFPP does not provide detailed project descriptions or funding assurances, nor does it preclude any future actions that could contribute to the State's flood management goals.

#### **G\_CFBF5-6**

Responses are provided to the list of bulleted items in the comment.

#### **Finalizing the Plan**

- **Extend the July 1st Legislative Deadline for Plan Adoption: Getting the Plan Right Is More Important than Meeting a Deadline**—As stated in Master Response 8, the DPEIR includes the following specific statutory objectives: adopt the CVFPP by July 1,



2012; and complete all steps necessary to develop and adopt the CVFPP by July 1, 2012, or such other date as may be provided by the Legislature. At present, there is no indication that the July 1, 2012, legislative deadline will be modified; hence, the schedule remains to adopt the CVFPP by July 1, 2012.

– **The Plan as a Whole Should Seek Throughout to Provide Better Answers to Questions Like These, Concerning Precisely What the Plan Is and Is Not**

a. **What, Specifically, Is the Plan Deciding or Determining**

**Now?**—As stated in Master Response 8, in accordance with legislative direction and reflecting stakeholder input, DWR prepared the 2012 CVFPP to describe the State’s vision for flood management in the Central Valley. This vision for flood management in the Central Valley is for a sustainable flood management system that provides a high degree of public safety, promotes long-term economic stability, and supports restoration of compatible riverine and floodplain ecosystems.

In the CVFPP, DWR describes the SSIA, which is a proposal for achieving the State’s vision for flood management. The SSIA helps achieve the State’s vision for flood management in a balanced manner by promoting responsible investment of public funds, commensurate with flood risks, in projects that integrate multiple benefits, in proactive maintenance of SFPC facilities and residual risk management, and in wise management of floodplains protected by the SPFC.

b. **What Specific Elements and Features of the Plan Could Change, or Come Out of the Plan after Adoption?**

—As stated in Master Response 14, implementing the SSIA requires a wide range of actions for planning, developing, analyzing, constructing, and managing improvements to the SPFC. This work will be organized into several programs, established and led by DWR and implemented in coordination with local, State, and federal partnering agencies. These programs are under DWR’s FloodSAFE program. Each program is responsible for specialized implementation of different portions of the SSIA; together, they cover all work required for implementation and management.

c. **What, Specifically, Will We Decide Later, When, and**

**How?**—See response immediately above and Master Response 14.

- Adopt a Plan that Is General and Open for Now, Purposely Leaving Flexibility and Room in the Plan to Adopt, Modify, and Possibly Abandon Projects and Plan Features Later On—As stated in Master Response 5, the 2012 CVFPP was prepared at a conceptual level. Consequently, the plan does not include detailed floodplain mapping, data on local flood stages, or specifics about future on-the-ground projects. This information will be developed during post-adoption implementation activities. However, a great deal of information and data on Central Valley flood risks and vulnerabilities were collected as part of 2012 CVFPP development. DWR has provided much of this information in the attachments to the CVFPP and will make further information available to assist local agencies. For additional details, also see Master Response 14.
- **Plan Development in Regional Planning Should Be a Bottom-Up, Not a Top-Down Process**—As stated in Master Response 13, anticipated activities after adoption of the 2012 CVFPP include regional flood management planning, development of basin-wide feasibility studies, and completion of project-level proposals and environmental compliance. These efforts will engage local entities and stakeholders to help identify projects to meet local and regional needs for flood management, refine the conceptual system elements proposed in the adopted plan, and identify specific projects for construction.
- **Better Describe Phased Implementation and Prioritization of Proposed Elements and Features of the Plan**—As stated in Master Response 20, all of the conceptual setback evaluations (even those evaluated under the SSIA) are conceptual only. As explained further in Master Responses 1 and 23, additional improvements would be evaluated on a case-by-case basis to address known performance problems and to incorporate additional environmental and other benefits. No specific alignments are being proposed at this time, and the development of more specific setback project proposals (if any) will involve substantial additional analysis and public participation. For more details see the post-adoption process described in Master Response 14.
- **Focus on Realistic Financing Options, Pacing, Phasing, and Prioritizing Plan Implementation Accordingly**—As stated in Master Response 15, as part of CVFPP implementation, the regional planning process will gather DWR, the Board, and local interests (flood management agencies, land use agencies, flood emergency responders, permitting agencies, environmental and agricultural interests, and other stakeholders) to develop regional plans that will include lists of prioritized projects and funding strategies for each of the nine regions

identified in the CVFPP. In a parallel effort, a systemwide planning process will refine the basin-specific objectives (Sacramento and San Joaquin basins) identified in the 2012 CVFPP. The most promising system elements will be combined with the prioritized list of regional elements identified in the regional plans to form SSIA “alternatives” for further evaluation in two basin-wide feasibility studies, one in the Sacramento River Basin and one in the San Joaquin River Basin.

As stated in Master Response 9, currently available bond funding is insufficient to fully implement the recommended SSIA as a whole. After adoption of the CVFPP in 2012, DWR will prepare a framework for financing projects at a regional level. DWR will use the information gathered during preparation of the framework to prepare the financing plan for the CVFPP that will guide investment in flood-risk management in the Central Valley during the next 20 years (CWC Section 9616(a)(13)). The financing plan will be available in 2013, after adoption of the 2012 CVFPP. The financing plan is critical to implementation, given the uncertainty regarding State, federal, and local agencies’ budgets and cost-sharing capabilities. The financing plan may include legislative actions to establish reliable funding for continued implementation of the SSIA in its totality to benefit the entire Central Valley and state of California.

# G\_CONCOM1



**Conservation Community Letter**  
to the  
**Central Valley Flood Protection Board**  
regarding the  
**Central Valley Flood Protection Plan**



American Rivers ♦ California Trout ♦ National Wildlife Federation  
California Waterfowl Association ♦ River Partners ♦ Environmental Defense Fund  
Natural Resources Defense Council ♦ Sacramento River Preservation Trust  
The Nature Conservancy ♦ Friends of the River ♦ Planning and Conservation League  
The Bay Institute ♦ Trout Unlimited ♦ Tuolumne River Trust ♦ PRBO  
Conservation Science ♦ Defenders of Wildlife

February 15, 2012

Benjamin Carter  
President  
Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento, CA 95821

Dear President Carter:

G\_CONCOM1-01

Thank you for the opportunity to provide comments on how and where the Central Valley Flood Protection Board (Board) should focus their efforts in the five months ahead.

The 2012 Central Valley Flood Protection Plan is an historic opportunity to chart a safer, healthier course for communities and rivers of the Central Valley. Four years of discussion, data, collection, and planning have gotten us to this point, and the staff from the Department of Water Resources has done a commendable job developing a draft plan. Now it is the Board's responsibility to ensure that the plan will truly serve the people of California.

We believe the plan lacks a systemwide vision and specific objectives for how California will safely manage floods in the 21<sup>st</sup> Century. The Flood Board must act to develop and implement this vision now, and not wait five years until the plan update. Too much is at stake to delay. Several of our organizations submitted comments on the preliminary draft of the plan in a November 17, 2011 letter to the Department of Water Resources, which is attached for your review. These comments are summarized below.

G\_CONCOM1-02

Conservation Group Comments on Preliminary Draft

G\_CONCOM1-03

1. Maximize the use of cost-effective and multi-benefit flood management tools such as flood bypasses, setback levees, and transitory storage on floodplains.

G\_CONCOM1-04

2. Specify an overarching strategy with measurable objectives for incorporating ecosystem function.

3. Clearly state how the flood plan will be integrated with related state and federal restoration efforts within the state flood control planning area.

G\_CONCOM1-05

4. Develop a more explicit climate change adaptation strategy to minimize projected impacts on flood risk, ecosystems, and water supply reliability.

G\_CONCOM1-06

5. Explicitly integrate and balance flood management and water supply objectives.

G\_CONCOM1-07

6. Provide specific guidance to enable local planning.

G\_CONCOM1-08

Although revisions to the preliminary draft plan have been made, the plan is still deficient in these six areas. We urge the Board to address these deficiencies and *articulate a clear and compelling vision for the future of the Central Valley Flood Management System*.

#### Need for a Vision and Specific Objectives for Central Valley Flood Management

G\_CONCOM1-09

The legislature intended that the 2012 flood plan be a blueprint for reshaping the flood system over the next few decades to better serve the people of California. The flood plan was never intended to be a “plan to get us to the next plan” or a general document that would quickly be superseded by regionally-focused plans or project funding criteria developed without properly assessing the needs of the entire system. Unfortunately, there is considerable risk that this draft plan will quickly become irrelevant unless the Board provides a more specific vision for the future.

G\_CONCOM1-10

The draft plan is a big step in the right direction, but it falls far short of what is necessary to articulate a compelling vision or specific direction for how and where to expedite effective implementation. In order to better serve the taxpayers of California and the residents of the Central Valley, the Board must now sharpen and clarify the draft into a document that:

- Defines specific, measurable, and time bound objectives for a system-wide plan for flood risk reduction and other state interests delineated in the authorizing legislation.
- Provides specific guidance on how the plan will incorporate the cost-effective measures, environmental stewardship, water supply reliability and other elements outlined in the six points listed above.
- Clearly and succinctly describes the key physical changes and policy initiatives that will be necessary to achieve the systemwide objectives.
- More clearly prioritizes where and how the state will prioritize future investments and expenditures.
- Provides clear guidance to local land-use jurisdictions to minimize conflicts with state flood risk reduction objectives.
- Concisely and persuasively articulates the rationale for the decisions listed above and explains why they are essential to protect Central Valley communities from flooding.

The draft plan falls short of making some of these tough choices and instead defers them to future planning processes as part of nine regional plans or the 2017 plan revision. While subsequent regional planning is necessary and beneficial, it will be impossible to develop regional plans that advance a systemwide solution without first identifying system-wide objectives. Furthermore, moving forward on regional plans without prioritizing which regions

need to be addressed first will not be a cost effective way to expeditiously reduce flood risk in the Central Valley.

If the Board does not take action to address these tough issues, the status quo will prevail, dampening any enthusiasm for marshaling additional resources that will ultimately be needed to make Central Valley communities safer and rivers healthier. We urge the board to act swiftly in order to avert this outcome and strengthen the plan.

John Cain  
American Rivers  
Trust

Curtis Knight  
California Trout

Eric Ginney  
Sacramento River Preservation

Brian J. Johnson  
Trout Unlimited

John Carlon  
River Partners

Steve Malloch  
National Wildlife Federation

Susan Tatayon  
The Nature Conservancy

Gary Bobker  
The Bay Institute

Monty Schmitt  
Natural Resources Defense Council

Kim Delfino  
Defenders of Wildlife

Ron Stork  
Friends of the River

Jonas Minton  
Planning and Conservation League

Patrick Koepele  
Tuolumne River Trust

Ann Hayden  
Environmental Defense Fund

Ellie Cohen  
PRBO Conservation Science

John Carlson, Jr.  
California Waterfowl Association



**Conservation Community Letter**  
 to the  
**California Department of Water Resources**  
 regarding the  
**Central Valley Flood Protection Plan**





American Rivers ♦ California Trout ♦ National Wildlife Federation

California Waterfowl Association ♦ River Partners ♦ Environmental Defense Fund

Natural Resources Defense Council ♦ Sacramento River Preservation Trust

The Nature Conservancy ♦ Friends of the River ♦ Planning and Conservation League

The Bay Institute ♦ Trout Unlimited ♦ Ducks Unlimited

Tuolumne River Trust ♦ PRBO Conservation Science ♦ Defenders of Wildlife

November 17, 2011

Jeremy Arrich,  
Chief, Central Valley Flood Planning Office  
Department of Water Resources  
3464 El Camino Ave, Suite 150  
Sacramento, CA 95821

Dear Mr. Arrich:

G\_ConCom1-12

Thanks for the opportunity to comment on the draft of the Central Valley Flood Protection Plan (CVFPP). We appreciate all of the efforts that you and your staff have made to complete this plan on schedule. The plan provides an unprecedented opportunity to not only reduce flood risk for communities in the Central Valley but also to restore healthy river ecosystems and support the recovery of a wide variety of fish and wildlife species. The CVFPP is also an important opportunity to plan for a changing climate so that California can better provide future generations with dependable flood protection and healthy rivers, along with water for farms and communities. In 2007, many of our organizations helped to develop the legislation mandating flood management reforms and the development of the CVFPP and since then have worked to support the creation of this plan. As such, we are committed to working with your staff over the months ahead to improve upon the working draft so that we can collectively support a flood management plan that will succeed in achieving the objectives of the authorizing legislation (see attached).

G\_ConCom1-13

In the spirit of collaboration we request the following improvements to create a successful and supportable plan.

1. Maximize the use of cost-effective and multi-benefit flood management tools such as flood bypasses, setback levees, and transitory storage on floodplains.
2. Specify an overarching strategy with measurable objectives for incorporating ecosystem function.
3. Clearly state how it will be integrated with related state and federal restoration efforts within the state flood control planning area.
4. Develop a more explicit climate change adaptation strategy to minimize projected impacts on flood risk, ecosystems, and water supply reliability.
5. Explicitly integrate and balance flood management and water supply objectives.
6. Provide specific guidance to enable local planning.

G\_ConCom1-14

1. Maximize the use of cost-effective and multi-benefit flood management tools such as flood bypasses, setback levees, and transitory storage on floodplains.

These tools will not only reduce flood risk for farms and cities, but will also provide other long-term benefits including reducing conflicts between levee maintenance and habitat, increasing flexibility to optimize operations of upstream reservoirs for water supply and hydropower generation, providing habitat for migratory birds and a host of other native species facilitating recovery of endangered species, and creating recreational opportunities and associated economic benefits. Specifically, the CVFPP should expedite expansion of bypasses and levee setbacks. We applaud provisions in the working draft to create and expand four flood bypasses but question DWR's plan to delay implementation until phase 3, the final phase of implementation. Expanded flood bypasses in the downstream reaches of the flood system will both reduce flood risk for urban communities and, if designed properly, substantially improve ecosystem function fish, waterfowl, and other wildlife.

G\_ConCom1-15

2. The plan must specify an overarching strategy with measurable objectives for incorporating ecosystem function.

We request adding a new section that incorporates the following five elements:

- A commitment to ensure that the plan will support the CVPIA salmon doubling goal by, among other things, determining the amount of floodplain habitat area that will be incorporated into the upper and lower reaches of the Sacramento and San Joaquin Rivers.
- A commitment in the plan to support of the goals and objectives of the Central Valley Joint Venture Implementation Plan, which includes the restoration of seasonal wetlands, semi-permanent wetlands and riparian habitat.
- Development of specific, measurable, achievable, relevant, and time-bound (SMART) habitat objectives such as those identified in the Central Valley Joint Venture Implementation Plan (<http://www.centralvalleyjointventure.org/science>).
- A commitment to design self-mitigating improvements to the flood management system wherever possible to reduce the time and costs associated with obtaining permits under the Clean Water Act, the Endangered Species Act, and other state and federal laws.
- A comprehensive plan for mitigating flood project improvements whenever it is not possible to develop improvements that are entirely self-mitigating. A comprehensive mitigation strategy consistent with the state's Regional Advanced Mitigation Planning proposal will increase effectiveness and reduce costs.

G\_ConCom1-16

3. The plan needs to state clearly how it will be integrated with related state and federal restoration efforts within the state flood control planning area.

State and federal governments have committed significant resources to major restoration efforts in the planning area, but the CVFPP does not appear to meaningfully coordinate and integrate these efforts. For example, the state and federal governments have committed over \$100 million for restoration of the San Joaquin River upstream of the Merced River. Properly integrating major restoration efforts into the CVFPP, channel improvements and levee setbacks along this reach of the San Joaquin would both reduce flood risk and provide ecological benefits. Failure to better integrate with on-going projects will not only result in

missed opportunities for cost sharing and maximizing mutual benefits, but will also increase the potential for wasted resources and costly conflicts. We request the CVFPP provide an assessment of all the major state and federal projects underway in the flood control planning area and identify specific opportunities for integrating these efforts into the CVFPP. To better satisfy the requirements of water code 9616, the CVFPP should prioritize specific projects to advance ecosystem function for early implementation or, in partnership with others, to demonstrate on-the-ground progress toward implementing flood management projects.

G-ConCom1-17

4. The plan must develop a more explicit climate change adaptation strategy to minimize projected impacts on flood risk, ecosystems, and water supply reliability.

Despite numerous state policies on climate change planning and clear direction from the legislature regarding incorporation of climate change projections in the CVFPP, the plan does not offer a clear climate change adaptation strategy or any discussion of sea level rise. Specifically, we request that the plan document the projected impacts of climate change on flood management and describe the constraints associated with maintaining or restoring the existing design conveyance footprint in the face of climate change. Finally, the plan should present a strategy for accommodating projected floods and sea level increases through a combination of expanded floodways, transitory floodplain storage, floodplain management, and reservoir reoperation. Sea level rise has implications for floodplain management in low-lying areas between Sacramento and Stockton, something that the State and this plan must address. As part of this expanded CVFPP effort, ecological benefits and the interactions of the water supply and floodwater management systems should be interpreted in the context of climate change. An honest assessment of projected climate impacts and a clear adaptation strategy will provide the economic certainty that Central Valley agricultural and urban communities need in order to prosper in the 21<sup>st</sup> Century.

G\_ConCom1-18

5. The plan needs to more explicitly integrate and balance flood management and water supply objectives.

Reliable water supply is essential to fish and wildlife, the California economy and, ultimately, the ability of the state to finance improvements to the state flood management system. Section 9616(a)(3) requires the plan to “link the flood protection system with the water supply system” wherever feasible. For example, previous studies by the Army Corps of Engineers and others have demonstrated that reservoir reoperation can improve both flood protection and water supply. Expanding floodways and preventing urbanization of vulnerable floodplains increases flexibility to operate upstream reservoirs for water supply. Conversely, failing to address the interrelationship between flood management and water supply could create unnecessary water supply impacts. Therefore, DWR must proactively lead the effort to better optimize water supply and flood management objectives.

G\_ConCom1-19

6. The plan should provide specific guidance to enable local planning.

The draft flood plan does not provide sufficient specificity to guide amendments to local plans nor development of local projects. Specifically, the plan needs to identify future potential floodway zones, basins, and other naturally floodprone areas that are needed to

meet the objectives of this and future flood plans or, where that is not possible, identify criteria that would similarly direct local governments as to where to restrict future development. The CVFPP should also identify planning criteria for local flood management projects including potential changes in design flows, levees that are likely to be moved or reconstructed, and regional goals for floodplain habitat that local projects must contribute to in order to ensure meeting salmon doubling goals for their area.

We recognize that the development of the CVFPP has been a large and complex undertaking that has sought to incorporate concerns from a broad array of stakeholders. We appreciate your hard work and are committed to working with you to finalize and implement a plan that will improve public safety while also supporting agriculture, healthy rivers ecosystems, and the abundant fish and wildlife that depend upon them. Thank you for considering our comments.



John Cain  
American Rivers



Curtis Knight  
California Trout



Eric Ginney  
Sacramento River Preservation Trust



Brian J. Johnson  
Trout Unlimited



John Carlon  
River Partners



Steve Malloch  
National Wildlife Federation



Susan Tatayon  
The Nature Conservancy



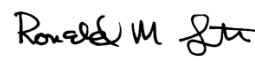
Gary Bobker  
The Bay Institute



Monty Schmitt  
Natural Resources Defense Council



Kim Delfino  
Defenders of Wildlife



Ron Stork  
Friends of the River



Jonas Minton  
Planning and Conservation League



Mark Biddlecomb  
Ducks Unlimited



Patrick Koepele  
Tuolumne River Trust



Ann Hayden  
Environmental Defense Fund



Ellie Cohen  
PRBO Conservation Science



John Carlson, Jr.  
California Waterfowl Association

Attachment

G\_ConCom1-21

**CALIFORNIA WATER CODE § 9616**

(a)The plan shall include a description of both structural and nonstructural means for improving the performance and elimination of deficiencies of levees, weirs, bypasses, and facilities, including facilities of the State Plan of Flood Control, and, wherever feasible, meet multiple objectives, including each of the following:

(1)Reduce the risk to human life, health, and safety from flooding, including protection of public safety infrastructure.

(2)Expand the capacity of the flood protection system in the Sacramento-San Joaquin Valley to either reduce floodflows or convey floodwaters away from urban areas.

(3)Link the flood protection system with the water supply system.

(4)Reduce flood risks in currently non-urbanized areas.

(5)Increase the engagement of local agencies willing to participate in improving flood protection, ensuring a better connection between state flood protection decisions and local land use decisions.

(6)Improve flood protection for urban areas to the urban level of flood protection.

(7)Promote natural dynamic hydrologic and geomorphic processes.

(8)Reduce damage from flooding.

(9)Increase and improve the quantity, diversity, and connectivity of riparian, wetland, flood plain, and shaded riverine aquatic habitats, including the agricultural and ecological values of these lands.

(10)Minimize the flood management system operation and maintenance requirements.

(11)Promote the recovery and stability of native species populations and overall biotic community diversity.

(12)Identify opportunities and incentives for expanding or increasing use of floodway corridors.

(13)Provide a feasible, comprehensive, and long-term financing plan for implementing the plan.

(14)Identify opportunities for reservoir reoperation in conjunction with groundwater flood storage.

(b)The plan *shall* include a prioritized list of recommended actions to reduce flood risks and meet the objectives described in subdivision (a).

## Conservation Community

### *Response*

#### ***G\_CONCOM1-01***

The comment states that the CVFPP lacks a systemwide vision and specific objectives. As stated in Master Response 8, the State Legislature enacted comprehensive flood risk management legislation in 2007, including SB 5. This law set a clear directive for an integrated systemwide approach to Central Valley flood management, and provided detailed guidance for DWR to follow in formulating the CVFPP. SB 5 specifically requires the CVFPP to provide significant systemwide benefits, evaluate both structural and nonstructural improvements, provide a description of the entire system and its current performance, promote multipurpose projects, and leverage other funding sources. These requirements for the CVFPP are embedded in SB 5 and codified in CWC Sections 9600–9625. DWR, in coordination with USACE, the Board, and multiple stakeholders, used this legislative direction to formulate the CVFPP’s primary and supporting goals.

In accordance with legislative direction and reflecting stakeholder input, DWR prepared the 2012 CVFPP to describe the State’s vision for flood management in the Central Valley. This vision for flood management in the Central Valley is for a sustainable flood management system that provides a high degree of public safety, promotes long-term economic stability, and supports restoration of compatible riverine and floodplain ecosystems. In the CVFPP, DWR describes the SSIA, which is a proposal for achieving the State’s vision for flood management. The SSIA helps achieve the State’s vision for flood management in a balanced manner by promoting responsible investment of public funds, commensurate with flood risks, in projects that integrate multiple benefits, in proactive maintenance of SFPC facilities and residual risk management, and in wise management of floodplains protected by the SPFC.

The comment also states that the vision should be implemented now rather than in 5 years. Some elements of the SSIA have already been implemented and the CVFPP identified these and other near-term actions in Section 4.5, “2007–2011 Accomplishments and Near-Term Priority Actions (2012 through 2017).” Others may be accomplished before the first update of the CVFPP in 2017, and many will require additional time to fully develop and implement. Ongoing and new planning studies, engineering, feasibility studies, environmental review, designs, funding, and partnering are required to better define, and incrementally fund and implement, elements of the SSIA during the next 20–25 years. To leverage State funds with federal funds, federal sponsorship has to be established. This means that the

federal project development processes and timelines will determine implementation timelines.

See Master Responses 8 and 14 for additional information about the CVFPP vision/formulation and post adoption time frames/processes, respectively.

***G\_CONCOM 1-02***

The comment is noted. As discussed in Master Response 7, multi-benefit projects are a focus of the CVFPP, and tools such as flood bypasses, setback levees, and transitory storage on floodplains are components of the SSIA as specified in Section 3.0, “State Systemwide Investment Approach,” in the CVFPP.

***G\_CONCOM 1-03***

See response to comment G\_ConCom1-01.

As stated in Master Response 7, the SSIA includes the supporting goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time. Under the SSIA, ecosystem restoration opportunities are integral parts of flood system improvements, including projects for urban areas, small communities, and rural-agricultural areas. Integrating ecosystem restoration into these flood protection projects will focus on preserving important SRA habitat along riverbanks and help restore the regional continuity/connectivity of such habitats. In addition, SSIA ecosystem restoration activities may include improving fish passage, increasing the extent of inundated floodplain habitat, creating opportunities to allow river meandering and other geomorphic processes, or other measures that may be identified during post-adoption activities. Potential effects on flood management and channel capacity will be considered during implementation of any ecosystem restoration actions. Post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, State and USACE permitting) will allow for detailed development and review of the conceptual ecosystem restoration targets described in the CVFPP and its attached Conservation Framework.

Appendix E, “2012 Central Valley Flood Protection Plan Conservation Framework,” of the CVFPP provides a preview of a long-term

Conservation Strategy that DWR is developing to support the 2017 CVFPP Update. The Conservation Framework focuses on promoting ecosystem functions and multi-benefit projects in the context of integrated flood management for near-term implementation actions and projects. The Conservation Framework provides an overview of the floodway ecosystem conditions and trends and key conservation goals that further clarify the CVFPP's ecosystem goal.

***G\_CONCOM 1-04***

See response to comment G\_ConCom1-03.

In addition, the SSIA includes system elements such as increased opportunities for ecosystem restoration compatible with the BDCP, Delta Plan, and SJRRP, as examples of three major restoration efforts. The CVFPP focuses on the areas currently receiving protection from SPFC facilities. Although flood management is not within the scope of the BDCP, at least two proposed conservation measures directly relate to flood management: (1) the Yolo Bypass Fisheries Enhancement seeks to improve upstream and downstream fish passage through the bypass, and (2) Seasonally Inundated Floodplain Restoration calls for greater duration of flows along the Yolo Bypass. The Yolo Bypass is a major SPFC facility for alleviating potential flood risk in the Sacramento River Basin and is within both the plan area and CVFPP's SPFC planning area.

The CVFPP's SSIA proposes an expansion of the Yolo Bypass to increase its ability to handle peak flows during large flood events. This proposed expansion could be accomplished by setting back levees upstream from Rio Vista and widening the Fremont Weir. This expansion presents opportunities to improve fish passage at SPFC facilities, improve fish access to upstream aquatic habitat, and facilitate natural flow attenuation.

The CVFPP focuses on the areas that currently receive protection from SPFC facilities in the San Joaquin Basin. The Restoration Area considered in the SJRRP (defined as the river and associated areas and structures from Friant Dam to the Merced River confluence) is largely rural-agricultural with some small communities. A portion of the SJRRP Restoration Area currently receives flood protection from SPFC facilities. The Settlement Agreement goals for the SJRRP call for modifications to river channels and flood management facilities that include levees, bypasses, and water diversion facilities in the Restoration Area. Many of the SJRRP modifications would require additional detailed studies and regulatory permits, and some of these modifications likely would be associated with SPFC facilities. Where feasible and consistent with the CVFPP's SSIA, SJRRP actions could be considered for CVFPP implementation.



As stated in Master Response 14 and in Section 5.9 of the Conservation Framework, DWR is collaborating with an interagency advisory committee (DWR, DFG, USFWS, NMFS, and USACE) to promote a strong working relationship with resource and regulatory agencies in the development of a long-term Conservation Strategy. DWR will work with this committee to identify key opportunities for collaboration with other programs and efforts and expand partnerships for improving conservation in the Central Valley flood management system.

***G\_CONCOM 1-05***

As stated in Master Response 17, CWC Section 9614(f) requires the CVFPP to include a “description of the probable impacts of projected climate change . . . on the ability of the system to provide adequate levels of flood protection.” To address this requirement and promote the informational and public participation purposes of CEQA, an analysis of the effects of climate change was included in Attachment 8K, “Climate Change Analysis,” in Appendix A, “Central Valley Flood Protection Plan.”

The current science and best available information do not properly support a complete, quantitative analysis for climate change impacts on flood management. Climate change impacts and considerations have been incorporated into many recent and ongoing California resources planning studies, using varying analytical approaches. The CVFPP is the first major policy-level study with broad applications that addresses climate change for flood management in California. Typical analyses of climate change impacts—that is, assessments for long-term water supply needs—consider likely changes in average temperature and precipitation. However, climate change impacts on extreme events, such as floods, will not result from changes in averages, but from changes in local extremes.

To that end, DWR also has invested resources in developing a unique approach for assessing the impacts of climate change on Central Valley flood management. DWR has worked with leading experts and practitioners in the field to develop a new methodology based on the intensity of “atmospheric rivers,” which are fast-moving, concentrated streams of water vapor that can release heavy rains. The commonly known “Pineapple Express” is a form of atmospheric river.

However, insufficient data are available to be able to predict the magnitude or frequency of climate change impacts on extreme storm events, and climate projections from global climate models have difficulty representing regional- and local-scale precipitation patterns and processes that drive extreme events. DWR is working instead on the concept of prudent decision making that focuses on investments that could accommodate a broader range of climate change scenarios, rather than optimizing investments

within a few selected extreme scenarios. DWR recently applied the resulting Threshold Analysis Approach to the Yuba-Feather system in a proof-of-concept pilot study. The results of the pilot study suggest that under F-CO, the Yuba River system is more vulnerable to changing climate conditions because of the limited regulating capacity (outlet release capacity) of New Bullards Bar Dam. This information provides guidance for the overall investment strategy for modifications such as enlarging outlets at New Bullards Bar Dam. DWR intends to fully develop the Threshold Analysis Approach for the 2017 CVFPP Update with new Central Valley hydrology and improved atmospheric river indices. This pilot study and the overview of potential climate change effects on the Central Valley flood management system are further detailed in Attachment 8K, “Climate Change Analysis,” in Appendix A, “Central Valley Flood Protection Plan.”

Although the 2012 CVFPP does not include a complete, quantitative analysis for climate change impacts on flood management, the CVFPP does include various system elements in its climate change adaptation strategy. The system elements provide additional benefits to the regional elements, and improve the overall function and performance of the SPFC in managing large floods. They also provide greater flexibility in accommodating future hydrologic changes, including climate change, and provide greater system resiliency in the face of changing downstream conditions. An evaluation of climate change in Section 6.6 of the DPEIR, titled “Effects of Global Climate Change on Program Facilities and Operations,” comes to similar conclusions.

The SSIA includes these system elements that provide flexibility to accommodate higher flows resulting from climate change:

1. Wider bypasses to lower floodwater surface elevations would increase flow-carrying capacity and flexibility to deal with higher floodflows that may occur because of climate change.
2. Changes in reservoir operations from Forecast-Based Operations and F-CO can provide additional flexibility and adaptability to changes in extreme flood events.
3. The SSIA does not preclude State participation with others in reservoir expansion projects, and includes obtaining rights for floodplain transitory storage from willing landowners.

#### ***G\_CONCOM 1-06***

The CVFPP explicitly integrates and balances flood management and water supply objectives. Master Response 7 in particular discusses this topic (also

see Sections 1.6.2, 2.8, 3.14.7, and 4.7.1 in Appendix A, “Central Valley Flood Protection Plan”).

SB 5 sets legislative direction for the CVFPP to “...include a description of both structural and nonstructural means for improving the performance and elimination of deficiencies of levees, weirs, bypasses, and facilities, including facilities of the State Plan of Flood Control, and, wherever feasible, meet multiple objectives...” (CWC Section 9616(a)). The legislation further identifies 14 objectives, two of which address water supply and groundwater recharge (CWC Sections 9616(a)(3) and 9616(a)(14)).

The CVFPP includes a high-level discussion on integrating water supply benefits with flood management improvements. The SSIA elements focus on public safety and improvement of flood management, consistent with the legislative direction and CVFPP primary goal; however, implementing these elements could improve water management because expanding floodways and the bypass system could improve the flexibility of reservoir operations and increase in-channel groundwater recharge. The SSIA describes potential opportunities for integrating water supply benefits with proposed flood management actions, but it does not include specific project recommendations related to water supply because of the need for future site-specific proposals and analyses. During post-adoption activities (regional flood management planning and development of basin-wide feasibility studies), additional details will be developed, including specific water management features as part of multi-benefit projects, in collaboration with interested local and regional agencies and organizations.

***G\_CONCOM 1-07***

As stated in Master Response 5, specific guidance to enable local planning has been proposed in the CVFPP to the degree possible at this stage in the CVFPP process. DWR has made the following efforts to provide technical assistance to local jurisdictions related to implementation of the CVFPP:

- DWR completed its legislative responsibility by developing urban level of flood protection criteria consistent with current legislation, and in collaboration with cities and counties.
- DWR completed the draft CVFPP for the Board’s adoption:
  - The CVFPP describes the State’s investment approach and interests in SPFC facilities and the associated protected areas.
  - The *Draft Urban Level of Flood Protection Criteria* is incorporated by reference.

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- The *Urban Levee Design Criteria*, which describes the engineering criteria for levees and floodwalls, is incorporated by reference in the *Draft Urban Level of Flood Protection Criteria* and the CVFPP.
- DWR has shared and will continue to share available data, tools, and other relevant information with cities and counties, including the following details:
  - CVFED Program (anticipated 2013)
    - Mapping of the 200-year floodplain for the mainstem Sacramento and San Joaquin rivers and major tributaries
    - Fine-scale topographic (LiDAR) data
    - System hydraulic models and data
  - Central Valley Hydrology Study (anticipated 2013)
    - System hydrology (including climate change considerations)
    - System hydrologic models and data
  - Levee Evaluation Program (ongoing, with currently available preliminary data)
    - Inspection and geotechnical data
    - Levee integrity assessments and data
    - Existing data and tools used to develop the 2012 CVFPP
- With potential legislative support and collaboration with other federal and State agencies (e.g., FEMA), DWR may consider providing additional assistance to cities and counties as they develop or acquire additional floodplain information to support their local planning and decision making.
- DWR has completed a guide titled *Implementing California Flood Legislation into Local Land Use Planning: A Handbook for Local Communities* (2010) ([http://www.water.ca.gov/floodmgmt/lrafmo/fmb/docs/Oct2010\\_DWR\\_Handbook\\_web.pdf](http://www.water.ca.gov/floodmgmt/lrafmo/fmb/docs/Oct2010_DWR_Handbook_web.pdf)). This handbook covers more than the requirements of an urban level of flood protection. It describes how the 2007 flood risk management legislation affects cities' and counties' responsibilities to meet local planning

requirements such as those for general plans, development agreements, zoning ordinances, and tentative maps.

For additional details, see Master Response 5; Section 4.4.2 in Appendix A, “Central Valley Flood Protection Plan”; *Draft Urban Level of Flood Protection Criteria* (April 2012); and *Urban Levee Design Criteria* (May 2012).

**G\_CONCOM 1-08**

The comment states that revisions to the preliminary draft CVFPP have been made, but that the plan is deficient in the six areas identified in comments G\_ConCom1-02 through G\_ConCom1-07. The Board and DWR believe that the responses prepared in response to these six comments provide substantial evidence that the issues identified in the comment have been fully addressed in the CVFPP. This comment is noted.

**G\_CONCOM 1-09**

See response to comment G\_ConCOM1-01.

**G\_CONCOM 1-10**

This comment is addressed primarily in response to comment G\_ConCOM1-01.

As stated in Master Response 8, DWR prepared the 2012 CVFPP to describe the State’s vision for flood management in the Central Valley in accordance with legislative direction and reflecting stakeholder input. This vision for flood management in the Central Valley is for a sustainable flood management system that provides a high degree of public safety, promotes long-term economic stability, and supports restoration of compatible riverine and floodplain ecosystems.

As stated in Master Response 9, the SSIA was formulated by assembling the most promising, affordable, and timely elements of the three preliminary approaches to best meet legislative requirements and identified CVFPP goals. The SSIA reflects a balanced and fiscally responsible approach, which will be developed further as DWR completes more detailed studies and designs for site-specific capital improvements and develops other, systemwide flood improvement projects.

The comment also states that the vision results in decisions being deferred. It is important to note, however, that some elements of the SSIA already have been implemented (through the Early Implementation Projects Program since 2007, for example). Others may be accomplished before the first update of the CVFPP in 2017, and many will require additional time to

fully develop and implement. Ongoing and new planning studies, engineering, feasibility studies, environmental review, designs, funding, and partnering are required to better define, and incrementally fund and implement, elements of the SSIA during the next 20–25 years. The Board and DWR believe that the implementation time frame is prudent, because of the size and complexity of the program. The comment is noted.

***G\_CONCOM 1-11***

This comment is addressed primarily in response to comment G\_ConCOM1-10. The comment is noted.

***G\_CONCOM 1-12***

The Board and DWR appreciate the Conservation Community's support of the CVFPP. The comment is noted.

***G\_CONCOM 1-13***

See responses to comments G\_ConCom1-02 through G\_ConCom1-07.

***G\_CONCOM 1-14***

See responses to comments G\_ConCom1-02, G\_ConCom1-03, and G\_ConCom1-04.

***G\_CONCOM 1-15***

See response to comment G\_ConCom1-03.

This comment also requests the inclusion of several specific measurable ecosystem function objectives in the CVFPP to address support of the CVPIA salmon doubling goal, support goals and objectives of the Central Valley Joint Venture Implementation Plan, and commit to design self-mitigating improvements and related goals. The Board and DWR have considered these comments; however, these specific additions to the CVFPP are not necessary as the CVFPP already has strong commitments to environmental considerations. One of the CVFPP's supporting goals is to promote ecosystem functions by integrating the recovery and restoration of key physical processes, self-sustaining ecological functions, native habitats, and species into flood management system improvements. The comment is noted.

As stated in Master Response 7, SB 5 sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)). The SSIA includes the supporting goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk reduction projects that

will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time. Under the SSIA, ecosystem restoration opportunities are integral parts of flood system improvements, including projects for urban areas, small communities, and rural-agricultural areas. Integrating ecosystem restoration into these flood protection projects will focus on preserving important SRA habitat along riverbanks and help restore the regional continuity/connectivity of such habitats. In addition, SSIA ecosystem restoration activities may include improving fish passage, increasing the extent of inundated floodplain habitat, creating opportunities to allow river meandering and other geomorphic processes, or other measures that may be identified during post-adoption activities. Potential effects on flood management and channel capacity will be considered during implementation of any ecosystem restoration actions. Post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, State and USACE permitting) will allow for detailed development and review of the conceptual ecosystem restoration targets described in the CVFPP and its attached Conservation Framework.

Appendix E, “2012 Central Valley Flood Protection Plan Conservation Framework,” provides a preview of a long-term Conservation Strategy that DWR is developing to support the 2017 CVFPP Update. The Conservation Framework focuses on promoting ecosystem functions and multi-benefit projects in the context of integrated flood management for near-term implementation actions and projects. The Conservation Framework provides an overview of the floodway ecosystem conditions and trends and key conservation goals that further clarify the CVFPP’s ecosystem goal.

***G\_CONCOM 1-16***

See response to comment G\_ConCom1-04. The Board and DWR have identified numerous plans within the SPFC, from which the CVFPP will consider ways to best integrate. The comment is noted.

***G\_CONCOM 1-17***

See response to comment G\_ConCom1-05.

***G\_CONCOM 1-18***

See response to comment G\_ConCom1-06.

***G\_CONCOM 1-19***

See response to comment G\_ConCom1-07.

***G\_CONCOM 1-20***

The Board and DWR appreciate the Conservation Community's support of the CVFPP. The comment is noted.

***G\_CONCOM 1-21***

This section of the California Water Code is included on page 1-27 in Section 1.6.3, "Plan Formulation Process," of the CVFPP. The comment is noted.



# G\_CONSERVE1



April 20, 2012

Mary Ann Hadden, Staff Environmental Scientist DWR, DFM c/o MWH  
3321 Power Inn Road, Suite 300 Sacramento, CA 95826  
Sent via email: DPEIRcomments@water.ca.gov

## RE: Conservation Group Comments on the March 2012 CVFPP DPEIR

Dear Ms. Hadden,

Collectively our organizations appreciate the opportunity to comment on the Draft Program Environmental Impact Report (DPEIR) for the Central Valley Flood Protection Plan (CVFPP). We believe the draft plan is a major step toward improving the way the State of California manages the rivers of the Central Valley and the great floods that the region periodically experiences, events that climate science indicates will occur more frequently in the future. The draft plan is commendable for its initial effort to address these critically important and interrelated issues. However, the draft must be improved in certain respects to ensure the plan reduces flood risk while supporting healthy river ecosystems as required by the Central Valley Flood Protection Act of 2008 (CVFPA).

We believe and the CVFPP has recognized that win-win solutions can increase both public safety and ecosystem function and that these joint strategies are the best strategy for reducing flood risk. The undersigned organizations believe that the best way to protect Central Valley communities from flooding is to expand floodways to safely accommodate flood flows. More room for our rivers and floodways also creates more opportunities for habitat restoration, parks, recreation, and the jobs created by these efforts. In addition, expanding floodways will create more flexibility for managing upstream reservoirs for improved water supply reliability.

G\_CONSERVE1-02

Below we offer our comments on sections of the DPEIR. We appreciate the difficulty in preparing a program level CEQA document that lacks specific project details to adequately determine impacts, mitigations and alternatives. With this in mind, we offer similar general level comments with specific examples where possible.

G\_CONSERVE1-03

## **2.0 Program Description**

The CVFPP and the DPEIR currently identifies flood protection as the primary goal and appears to subordinate ecosystem restoration and multi-benefit projects, including water supply, to supporting roles. We understand and support CVFPP focus on flood protection and the protection of human life, but we do not believe that it is necessary or wise to relegate water supply and ecosystem restoration to second tier status as appears to be the case. Instead, a successful and legally permissible plan must achieve the primary goal while also ensuring concurrent progress toward the supporting goals.

The eight objectives (or goals per the CVFPP) identified in the DPEIR are:

Primary Objective:

- Improve Flood Risk Management

Secondary Objectives:

- Improve Operations and Maintenance
- Promote Ecosystem Functions
- Improve Institutional Support
- Promote Multi-Benefit Projects

Statutory Objectives:

- Maximize Flood Risk Reduction Benefits within the Practical Constraints of Available Funds
- Adopt the CVFPP by July 1, 2012
- Meet Multiple Objectives Established in Section 9616 of the California Water Code

G\_CONSERVE1-04

Our concern with the CVFPP is that it largely focuses on the primary objective of flood risk management without meaningfully integrating improvements to also advance the supporting objectives, including ecosystem restoration. The lack of a comprehensive and integrated plan will require costly mitigation and time consuming permitting. As described below, the current draft carries environmental risks that have not yet been adequately evaluated and disclosed under CEQA.

G\_CONSERVE1-05

Federal law requires that water resource management throughout the Central Valley comply with the Clean Water Act, the Endangered Species Act, and other applicable laws. The CVFPP will change the hydrologic and ecological conditions of Central Valley rivers and the Delta, and the Board must ensure that the plan is implemented consistent with statutory and regulatory requirements.

G\_CONSERVE1-06

To avoid any ambiguity about the relative importance of supporting goals versus the primary goal, we recommend that the Central Valley Flood Protection Board (Board) adopt an additional primary goal statement: "Provide a plan for an integrated and sustainable approach to flood risk management." The Board should also include specific language from the CVFPP in section 1.6.2 indicating how the Conservation Framework and associated conservation goals and objectives are integral to that plan. The

Board should clarify that the plan and all future projects funded under the plan should advance the supporting goals, together with the primary goal, wherever possible.

The plan should include SMART objectives related to flood risk reduction, ecosystem restoration, and the other plan goals before DWR invests in additional system or regional planning efforts. The ecosystem objectives should “promote the recovery and stability of native species populations and overall biotic community diversity” as directed by the legislature. While the plan will ultimately need to include objectives, we believe that the Board must integrate measures that would contribute to doubling of natural production of Chinook salmon from the average production of 1967-1991, consistent with the provisions of state and federal law, the Department of Fish and Game Ecosystem Restoration Program’s Conservation Strategy for Restoration of the Sacramento-San Joaquin Delta Ecological Management Zone and the Sacramento-San Joaquin Valley Regions, and the Central Valley Joint Venture (CVJV) objectives for wetland bird habitat, riparian bird habitat, and wildlife compatible agriculture.

G\_CONSERVE1-07 On page 2-2, the Project Description section of the DPEIR states that, “adoption of the CVFPP (which describes the State Systemwide Investment Approach (SSIA)—that is, the proposed program) by the Central Valley Flood Protection Board would provide the general direction for long-term implementation of improvements to the Central Valley’s flood management system. The proposed program sets the broad policy direction for a wide range of possible future actions while enabling flexibility to address changing needs”. We understand the need for broad policy direction at this time, however, while we believe the SSIA is designed to improve flood risk management, we do not believe it is optimized for any specific criteria. The selection of elements appears to be a “best professional judgment” rather than a designed outcome. There are no conveyance capacity criteria, no acceptable risk levels, no unavoidable loss thresholds, no loss of life criteria, no cost criteria, and no ecosystem performance criteria. This opens the plan to criticism on all these fronts, and makes it impossible to analyze under CEQA. As a first approximation of what the flood system might look like with some improvements, the SSIA is instructive. But as a solid foundation for moving forward it lacks substance and rigor. We suggest that the Board accept the SSIA only as a preliminary framework and direct staff to refine the direction of the plan by developing broadly acceptable design criteria.

G\_CONSERVE1-08 We suggest that these criteria could be linked to risk reduction criteria, Stage/Flow criteria, or agricultural land preservation to result in multi-objective project zones. For example, if a basin had a criterion of reducing stage by 2 feet in the 200-year event, this could be coupled with the ecosystem criteria to identify sites that could accommodate both outcomes. A more fully developed set of criteria would serve as design checks on specific projects. Every project may not contribute to all criteria, and some criteria may apply in only specific reaches of the system. But developing the criteria on a systemwide basis should provide a level of integration that minimizes the chance of a project in one reach hindering performance in another reach.

G\_CONSERVE1-09 **3.0 Environmental Settings, Impacts and Mitigation Measures**

Although the Conservation Framework and conservation elements of the CVFPP are a great step forward, the plan still suffers from the view that conservation elements should be viewed as mitigation for impacts instead of fully integrated elements of most flood management improvements. As the CVFPP develops, it should strive to move beyond mitigation and more towards assessing the multiple benefits of integrated management.

G\_CONSERVE1-10 **3.5 Biological Resources**

In general, the DPEIR and the CVFPP lack measurable objectives. To improve this we recommend the CVFPP adopt, where possible, already established measurable goals and objectives. More specifically we recommend the adoption of doubling goal for anadromous fishes contained in state law and the Central Valley Improvement Act (CVPIA), as well as the Central Valley Joint Ventures objectives for wetland bird habitat, riparian bird habitat and wildlife compatible agriculture.

G\_CONSERVE1-11 **3.7 Climate Change**

The potential for climate change to increase the frequency and severity of flooding events provides additional motivation to consider reducing flood risk by further limiting urban development in flood prone areas. Because climate change will impact not only flood risk, but also ecosystem function and water supply, there is a need to develop flood projects that, in addition to safety, can also provide benefits to other factors such as water supply and ecosystem health.

G\_CONSERVE1-12 The climate change appendix of the CVFPP (pg. 2-26) did develop a pilot study to demonstrate a quantitative approach for estimating the impacts of climate change, but apparently the results of this study were not incorporated into the DPEIR. We suggest these data be included as part of the climate change assessment in the DPEIR.

G\_CONSERVE1-13 **4.0 Cumulative Impacts**

Due to the cumulative impacts of the Central Valley flood control and water management system, endangered species protection and associated permitting is a major obstacle to implementation. A clear and actionable conservation strategy is needed and essential for facilitating permits, expediting implementation, and reducing costs.

G\_CONSERVE1-14 **5.0 Baseline**

The Joint Federal Project (JFP) at Folsom should be considered part of the project, not as baseline. The JFP is accounted for in the budget for the SSIA and expand flood system capacity (EFSC) alternatives, but it is included in the hydraulic and risk reduction analysis as part of the no-project alternative. This will lead to overstating the costs of the SSIA and EFSC and understating the risk reduction benefits. Furthermore, inclusion of the JFP as part of the baseline could substantially increase the permitting and mitigation burdens and costs associated with implementing important components of the SSIA and EFSC. For example, expanding Yolo Bypass without JFP may create redirected hydraulic impacts, while treating Yolo expansion along with JFP as a single project will be “self-mitigating” because the benefits of the JFP will offset any impacts of expanding the bypass. Therefore, the JFP should be included in the PEIS as part of the project, not as part of the no-project alternative.

G\_CONSERVE1-15 **6.0 Alternatives and Cumulative Effects**

We believe that the alternatives analysis may distort costs and benefits of the various alternatives and fails to account for future foreseeable projects, including growth inducing impacts. This is particularly true for the “protect high risk communities” (PHRC) alternative. The PHRC provides 200 and 100 year protection for a variety of urban, urbanizing, and small communities, but then measures risk reduction benefits based on the 2000 census data. Considerable growth has already occurred in several of these areas including Natomas and Sutter and Yuba County since 2000. Therefore, the analysis understates risk.

G\_CONSERVE1-16 More importantly, increasing flood protection for these areas without concomitant risk reduction measures, such as land use regulation or conservation easements, will further induce growth and increase flood risk over time. As a result, the PHRC investment of \$9-11 billion may actually increase risk rather than reduce annualized economic damages by 63% as reported in the plan. State investment in levee upgrades is growth inducing and will ultimately increase the state’s flood risk, which is directly counter to the primary goal of the plan. This additional urbanization is a foreseeable consequence that was not evaluated.

G\_CONSERVE1-17 We believe the Enhanced Flood System Capacity Alternative provides the best opportunity to adequately address all eight objectives of the CVFPP. (In the CVFPP they are called goals. We suggest consistency in nomenclature here.) The Enhanced Flood System Capacity Alternative seeks to achieve multiple benefits by enhancing the flood system’s storage and conveyance capacity, protecting high-risk communities, and fixing levees in place in rural-agricultural areas. This alternative combines the features of other alternatives and provides greater capacity within flood conveyance channels to lower flood stages in most of the system.

G\_CONSERVE1-18 The lack of details in the Enhanced Flood System Capacity Alternative make it difficult to assess to what extent the eight objectives are being met. At the current stage of program development, there is little specificity for plan implementation or alternatives, such as widening floodways and new flood bypasses.

Without further detail it is not possible to assess the environmental impacts and level of significance of these effects and feasible mitigation. The DPEIR barely mentions linkages to water supply and fails to mention how expanded floodways and floodplain restoration could improve water supply reliability. Further, additional analyses are needed to model levee setbacks and the effects this will have on meeting program objectives.

G\_CONSERVE1-19 We don't believe that the EFSC alternative was appropriately configured to economically compete with the other alternatives. It is not a stand-alone alternative, because it is comprised of two other alternatives plus a number of other measures. As a result, it appears cost prohibitive. DWR and the Board should optimize both the SSIA and EFSC, and/or expand the range of alternatives, to develop a more cost effective approach that relies more heavily on resource protective strategies such as levee setbacks, bypasses, and transitory storage and less heavily on levee improvements to meet plan objectives.

G\_CONSERVE1-20 In sum, the SSIA and the EFSC alternatives do not appear to be optimized to balance costs and benefits. As discussed above, it is difficult to optimize an approach without first articulating specific objectives or criteria that an alternative is intended to achieve. Regardless of the lack of specific objectives, the SSIA appears to be a grab bag of measures. The SSIA selects from certain described measures, but the rationale for that selection is not clear. We agree that a hybrid approach that selects the best of the three preliminary approaches makes sense. Furthermore, creating a pallet of measures and then building a solution set from those measures is reasonable. But in selecting the suite of measures, DWR should have conducted a more rigorous assessment of how the pieces fit together.

G\_CONSERVE1-21 The Enhanced Flood System Capacity Alternative should also identify all the positive impacts of the program on biological resources. For example, increased access to floodplains and bypasses by anadromous salmonids are important because they provide the physical habitat needed to manifest complex life histories. The Central Valley has lost nearly 95% of the historic floodplain and riparian habitats in part, due to construction of the existing flood management system. As a result, riverine ecosystems in the Central Valley are degraded and are more vulnerable to stochastic events such as changes in ocean conditions, low water years, and other variables. The EFSC alternatives are needed to support restoration of basic ecosystem function and diverse life histories that will be essential in the recovery of listed species and to buffer populations against collapse after stochastic events. This is an important concept to incorporate into the Enhanced Flood System Capacity Alternative.

G\_CONSERVE1-22 Finally, the Enhanced Flood System Capacity Alternative may benefit hunting and fishing opportunities for Central Valley residents, and other alternatives could suppress hunting and fishing. The potential for floodplain enhancement and increased waterfowl hunting and sportfishing should be quantified.

**Conclusion**

We appreciate the opportunity to comment on this ambitious plan. Our organizations are committed to working with you and the Board to ensure that the CVFPP results in safe communities and healthy rivers.

Sincerely,



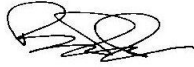
John Cain, American Rivers



Curtis Knight, CalTrout



Monty Schmitt, NRDC



Brian Johnson, Trout Unlimited



Ron Stork  
Friends of the River



Kelly Catlett, Defenders of  
Wildlife

## Conservation Group Comments

### *Response*

#### ***G\_CONSERVE1-01***

As stated in Master Response 8, in accordance with legislative direction and reflecting stakeholder input, DWR prepared the 2012 CVFPP to describe the State's vision for flood management in the Central Valley. This vision for flood management in the Central Valley is for a sustainable flood management system that provides a high degree of public safety, promotes long-term economic stability, and supports restoration of compatible riverine and floodplain ecosystems.

In the CVFPP, DWR describes the SSIA, which is a proposal for achieving the State's vision for flood management. The SSIA helps achieve the State's vision for flood management in a balanced manner by promoting responsible investment of public funds, commensurate with flood risks, in projects that integrate multiple benefits, in proactive maintenance of SFPC facilities and residual risk management, and in wise management of floodplains protected by the SPFC.

For additional details, see Master Response 8.

These comments do not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR. The comments are noted.

#### ***G\_CONSERVE1-02***

These comments do not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR. The comments are noted.

#### ***G\_CONSERVE1-03***

As stated in Master Response 9, the State Legislature enacted comprehensive flood risk management legislation in 2007, including the Central Valley Flood Protection Act of 2008. This law set a clear directive for an integrated systemwide approach to Central Valley flood management, and provided detailed guidance for DWR to follow in formulating the CVFPP. The Central Valley Flood Protection Act of 2008 specifically requires the CVFPP to provide significant systemwide benefits, evaluate both structural and nonstructural improvements, provide a description of the entire system and its current performance, promote



multipurpose projects, and leverage other funding sources. These requirements for the CVFPP are embedded in SB 5 and codified in Sections 9600–9625 of the California Water Code. DWR, in coordination with USACE, the Board, and multiple stakeholders, used this legislative direction to formulate the CVFPP’s primary and supporting goals, listed in Master Response 8.

The California Central Valley Flood Protection Act of 2008 (SB 5) defined multiple objectives for the CVFPP, codified in CWC Section 9616, to be achieved wherever feasible. Goals for the CVFPP were collaboratively drafted by DWR, its partners (the Board and USACE), and interested parties through an extensive communications and engagement process, capturing the guidance and objectives provided by CWC Section 9616. As a result of this process, one primary goal and four supporting CVFPP goals (described below) were established and provided guidance in forming specific CVFPP policies and physical elements.

The process used to develop CVFPP goals is described in Section 1.6 of the plan, titled “Formulation of the 2012 Central Valley Flood Protection Plan.” Much of this information is repeated and/or summarized in Section 2.1.2, “Purpose and Objectives of the Proposed Program,” and Section 2.2, “Development of the Proposed Program,” of the DPEIR. Relevant information from those sections is provided below.

The five CVFPP goals were carried forward and became the program objectives of the PEIR, as follows:

**Primary Objective**

- **Improve Flood Risk Management**—Reduce the chance of flooding and damages, once flooding occurs, and improve public safety, preparedness, and emergency response through the following:
  - Identifying, recommending, and implementing structural and nonstructural projects and actions that benefit lands currently receiving protection from facilities of the SPFC.
  - Formulating standards, criteria, and guidelines to facilitate implementation of structural and nonstructural actions for protecting urban areas and other lands of the Sacramento and San Joaquin river basins and the Delta.

### Supporting Objectives

- **Improve Operations and Maintenance**—Reduce systemwide maintenance and repair requirements by modifying the flood management systems in ways that are compatible with natural processes, and adjust, coordinate, and streamline regulatory and institutional standards, funding, and practices for operations and maintenance, including significant repairs.
- **Promote Ecosystem Functions**—Integrate the recovery and restoration of key physical processes, self-sustaining ecological functions, native habitats, and species into flood management system improvements.
- **Improve Institutional Support**—Develop stable institutional structures, coordination protocols, and financial frameworks that enable effective and adaptive integrated flood management (designs, operations and maintenance, permitting, preparedness, response, recovery, and land use and development planning).
- **Promote Multi-Benefit Projects**—Describe flood management projects and actions that also contribute to broader integrated water management objectives identified through other programs.

### ***G\_CONSERVE1-04***

As stated in Master Response 7, ecosystem improvements were integrated into the CVFPP (see Section 3.7 in Appendix A, “Central Valley Flood Protection Plan”). The Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)). The SSIA includes the supporting goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time.

Under the SSIA, ecosystem restoration opportunities are integral parts of flood system improvements, including projects for urban areas, small communities, and rural-agricultural areas. Integrating ecosystem restoration into these flood protection projects will focus on preserving important shaded riverine aquatic habitat along riverbanks and help restore the regional continuity/connectivity of such habitats. In addition, SSIA ecosystem restoration activities may include improving fish passage,

increasing the extent of inundated floodplain habitat, creating opportunities to allow river meandering and other geomorphic processes, or other measures that may be identified during post-adoption activities. Potential effects on flood management and channel capacity will be considered during implementation of any ecosystem restoration actions. Post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, State and USACE permitting) will allow for detailed development and review of the conceptual ecosystem restoration targets described in the CVFPP and its attached Conservation Framework.

Appendix E, “2012 Central Valley Flood Protection Plan Conservation Framework,” provides a preview of a long-term Conservation Strategy that DWR is developing to support the 2017 CVFPP Update. The Conservation Framework focuses on promoting ecosystem functions and multi-benefit projects in the context of integrated flood management for near-term implementation actions and projects. The Conservation Framework provides an overview of the floodway ecosystem conditions and trends and key conservation goals that further clarify the CVFPP’s ecosystem goal.

DWR believes that the CVFPP does meaningfully integrate improvements that advance the supporting objectives including ecosystem restoration, as well as the statutory objectives, as stated above. For additional details, see Master Responses 7, 8, and 19.

***G\_CONSERVE1-05***

DWR and the Board agree that the CVFPP must be implemented consistent with statutory and regulatory requirements. As stated in Master Response 14, both the Board and USACE have statutory roles for oversight of modifications to the State-federal flood management system (the SPFC), executed through their respective project review and permitting authorities. In addition to these continued roles, DWR will work closely with USACE and the Board in conducting post-adoption planning activities, including conducting the federal Central Valley Integrated Flood Management Study and State basin-wide feasibility studies to determine federal and State interests in implementation, respectively. The State will also partner with USACE on federal regional feasibility studies and post authorization scope-change investigations aimed at modifying the State-federal flood management system.

Various existing Federal programs, policies, and permitting processes administered by USACE will affect CVFPP implementation. One example is Section 14 of the Rivers and Harbors Act of 1899 (33 USC 408), which stipulates that modifications to a federal project must not be injurious to the

public interest. Another example is Section 104 of the WRDA of 1986, as amended (33 USC 2214), and Section 2003 of the WRDA of 2007, which amended Section 221 of the Flood Control Act of 1970 (33 USC 1962d–1965b) to provide guidance for obtaining federal funding credit for early implementation of projects.

For additional details, see Master Response 14.

***G\_CONSERVE1-06***

See response to comment G\_CONSERVE1-03. The commenter recommends additional goals and objectives. The process used to develop goals and objectives for the CVFPP is stated in response to comment G\_CONSERVE1-03, Master Response 8, and Master Response 19. The specific changes recommended by the commenter have been considered and are noted; however, no change to the CVFPP text was made.

***G\_CONSERVE1-07***

As stated in Master Response 23, as explained in the DPEIR, the environmental document for the CVFPP is a first-tier PEIR. A PEIR is “an EIR which may be prepared on a series of actions that can be characterized as one large project” and are related in specified ways (CEQA Guidelines Section 15168(a)). An advantage of using a PEIR is that it can “[a]llow the lead agency to consider broad policy alternatives and program wide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts” (CEQA Guidelines Section 15168(b)(4)). Accordingly, a PEIR is distinct from a project EIR, which is prepared for a specific project and must examine in detail site-specific considerations (CEQA Guidelines Section 15161).

Contrary to the assertions by several commenters, CEQA does not mandate that a first-tier PEIR identify with certainty the characteristics and impacts of second-tier projects that will be further analyzed before implementation during later stages of the program. Rather, identification of specific impacts is required only at the second-tier stage when specific projects are considered. Similarly, at the first-tier program stage, the environmental effects of potential future projects may be analyzed in general terms, without the level of detail appropriate for second-tier, site-specific review (CEQA Guidelines Sections 15146 and 15152). The CVFPP PEIR satisfies these requirements.

For additional details, see Master Response 23.

**G\_CONSERVE1-08**

See responses to comments G\_CONSERVE1-03 and G\_CONSERVE1-07. The establishment of new criteria as recommended by the commenter is not necessary to fulfill the purpose and objectives of the CVFPP.

**G\_CONSERVE1-09**

As stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)).

The SSIA includes the supporting goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time. Under the SSIA, ecosystem restoration opportunities are integral parts of flood system improvements, including projects for urban areas, small communities, and rural-agricultural areas. Integrating ecosystem restoration into these flood protection projects will focus on preserving important SRA habitat along riverbanks and help restore the regional continuity/connectivity of such habitats. In addition, SSIA ecosystem restoration activities may include improving fish passage, increasing the extent of inundated floodplain habitat, creating opportunities to allow river meandering and other geomorphic processes, or other measures that may be identified during post-adoption activities. Potential effects on flood management and channel capacity will be considered during implementation of any ecosystem restoration actions. Post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, State and USACE permitting) will allow for detailed development and review of the conceptual ecosystem restoration targets described in the CVFPP and its attached Conservation Framework.

Appendix E, “2012 Central Valley Flood Protection Plan Conservation Framework,” provides a preview of a long-term Conservation Strategy that DWR is developing to support the 2017 CVFPP Update. The Conservation Framework focuses on promoting ecosystem functions and multi-benefit projects in the context of integrated flood management for near-term implementation actions and projects. The Conservation Framework provides an overview of the floodway ecosystem conditions and trends and key conservation goals that further clarify the CVFPP’s ecosystem goal.

For additional details, see Master Response 7.

***G\_CONSERVE1-10***

See response to comment G\_CONSERVE1-03 regarding goals and objectives of the CVFPP and response to comment G\_CONSERVE1-07 regarding the programmatic nature of the PEIR. The establishment of new goals and objectives as recommended by the commenter is not necessary to fulfill the purpose and objectives of the CVFPP.

***G\_CONSERVE1-11***

As stated in Master Response 17, although the 2012 CVFPP does not include a complete, quantitative analysis for climate change impacts on flood management, the CVFPP does include various system elements in its climate change adaptation strategy. The system elements provide additional benefits to the regional elements, and improve the overall function and performance of the SPFC in managing large floods. They also provide greater flexibility in accommodating future hydrologic changes, including climate change, and provide greater system resiliency in the face of changing downstream conditions. An evaluation of climate change in Section 6.6 of the DPEIR, titled “Effects of Global Climate Change on Program Facilities and Operations,” comes to similar conclusions.

The SSIA includes these system elements that provide flexibility to accommodate higher flows resulting from climate change:

1. Wider bypasses to lower floodwater surface elevations would increase flow-carrying capacity and flexibility to deal with higher floodflows that may occur because of climate change.
2. Changes in reservoir operations from Forecast-Based Operations and F-CO can provide additional flexibility and adaptability to changes in extreme flood events.
3. The SSIA does not preclude State participation with others in reservoir expansion projects, and includes obtaining rights for floodplain transitory storage from willing landowners.

Sea-level rise will affect peak water surface elevations within the Delta and some distance upstream along its tributaries. The estimated average sea-level rise is currently under review by the National Research Council. For the 2012 CVFPP, high-tide conditions during the 1997 flood were used as the boundary conditions for hydraulic analysis; this tide was about 2 feet higher than would normally be expected on the basis of solar and lunar gravitational forces that create tides, and could be considered an initial, surrogate sea-level-rise condition resulting from climate change. DWR will

continue to coordinate with other DWR programs, the Delta Stewardship Council's Delta Plan, and ongoing USACE feasibility studies to collectively address how sea-level rise could contribute to potential estuary flooding in the Delta. Improved information about sea-level rise will be used in the 2017 CVFPP Update. DWR will develop approaches to address sea-level rise that may vary depending on the expected range and rate of sea-level rise.

For additional details, see Master Response 17.

**G\_CONSERVE1-12**

As stated in Master Response 17, recent CEQA case law suggests that an EIR is not required to evaluate the effects of climate change on proposed projects. However, CWC Section 9614(f) requires the CVFPP to include a "description of the probable impacts of projected climate change ... on the ability of the system to provide adequate levels of flood protection." To address this requirement and promote the informational and public participation purposes of CEQA, an analysis of the effects of climate change was included in Attachment 8K, "Climate Change Analysis," in Appendix A, "Central Valley Flood Protection Plan."

The current science and best available information do not properly support a complete, quantitative analysis for climate change impacts on flood management. Climate change impacts and considerations have been incorporated into many recent and ongoing California resources planning studies, using varying analytical approaches. The CVFPP is the first major policy-level study with broad applications that addresses climate change for flood management in California. Typical analyses of climate change impacts—that is, assessments for long-term water supply needs—consider likely changes in average temperature and precipitation. However, climate change impacts on extreme events, such as floods, will not result from changes in averages, but from changes in local extremes.

To that end, DWR also has invested resources in developing a unique approach for assessing the impacts of climate change on Central Valley flood management. DWR has worked with leading experts and practitioners in the field to develop a new methodology based on the intensity of "atmospheric rivers," which are fast-moving, concentrated streams of water vapor that can release heavy rains. The commonly known "Pineapple Express" is a form of atmospheric river.

However, insufficient data are available to be able to predict the magnitude or frequency of climate change impacts on extreme storm events, and climate projections from global climate models have difficulty representing regional- and local-scale precipitation patterns and processes that drive

extreme events. DWR is working instead on the concept of prudent decision making that focuses on investments that could accommodate a broader range of climate change scenarios, rather than optimizing investments within a few selected extreme scenarios. DWR recently applied the resulting Threshold Analysis Approach to the Yuba-Feather system in a proof-of-concept pilot study. The results of the pilot study suggest that under F-CO, the Yuba River system is more vulnerable to changing climate conditions because of the limited regulating capacity (outlet release capacity) of New Bullards Bar Dam. This information provides guidance for the overall investment strategy for modifications such as enlarging outlets at New Bullards Bar Dam. DWR intends to fully develop the Threshold Analysis Approach for the 2017 CVFPP Update with new Central Valley hydrology and improved atmospheric river indices. This pilot study and the overview of potential climate change effects on the Central Valley flood management system are further detailed in Attachment 8K, "Climate Change Analysis," in Appendix A, "Central Valley Flood Protection Plan."

For additional details, see Master Response 17.

#### **G\_CONSERVE1-13**

DWR understands that cumulative impacts, endangered species protection, and associated permitting are major issues with a program the size of the CVFPP. The DPEIR addresses all of these issues at a program level of detail. Moreover, DWR is a member of several teams assembled to define and streamline regional programmatic permitting strategies, such as the multi-agency Regional Advanced Mitigation Planning process and the Small Erosion Repair Program.

Regarding the need for a conservation strategy to facilitate permitting, program implementation, and reduced costs, as stated in Master Response 14, DWR is collaborating with an interagency advisory committee (DWR, DFG, USFWS, NMFS, and USACE) on development of a long-term Conservation Strategy. The Conservation Strategy will build on the Conservation Framework developed for the 2012 CVFPP, and will provide a comprehensive approach for the State to (1) achieve the environmental goals and objectives of the Central Valley Flood Protection Act of 2008 (SB 5), FloodSAFE, and the CVFPP; and (2) implement DWR's environmental stewardship policy within the flood management system. The Conservation Strategy will integrate measures to mitigate potential impacts on environmental resources resulting from improvements to the SPFC, along with other ecosystem restoration activities implemented within the SFPC footprint.



Development of the Conservation Strategy will continue in close coordination with, and will support development of, 5-year updates to the CVFPP. This collaborative development provides environmental planning, policy, and technical support to develop public outreach and engagement; to identify opportunities to solve flooding problems with environmental approaches; and to provide a solid scientific foundation for improving environmental conditions and trends. The Conservation Strategy will be developed through engagement with the Board, partnering agencies, and environmental, recreational, agricultural, and other interests.

**G\_CONSERVE1-14**

The comment suggests that it is inconsistent for the Joint Federal Project (JFP) at Folsom to be accounted for in the budget for the SSIA (i.e., included as a cost of the program), while at the same time being included in the no-project alternative. However, this is appropriate given the differing purposes of the two analyses. Since costs for the JFP will be incurred in the future, it is appropriate to account for them at that time as part of the SSIA. However, the no-project alternative is required to be based on a reasonable forecast of future conditions, which includes the JFP (CEQA Guidelines Section 15126.6(e)).

The comment also appears to suggest that hydraulic benefits from the JFP should be accounted for in connection with implementation of other portions of the SSIA such as an expansion of the Yolo Bypass, thus making the project “self mitigating.” Presumably this comment is intended to refer to the Board’s future evaluation of future activities, such as bypass expansions, to ensure adequate hydraulic performance. However, the Board’s future engineering and technical evaluations are based on standardized procedures described in the Title 23 regulations, which will determine how those evaluations are performed. Moreover, whether these evaluations (with or without consideration of benefits from the JFP) will have any effect on the environment is speculative at this time.

The comment frames these suggestions in terms of the appropriate “baseline.” However, the base case for financial planning purposes, the no-project alternative, and the environmental baseline under CEQA are not necessarily the same. In fact, Guidelines Section 15126.6 expressly states that: “The no project alternative analysis is not the baseline for determining whether the proposed project’s environmental impacts may be significant, unless it is identical to the existing environmental setting analysis which does establish that baseline ....”

CEQA analysis typically compares project conditions to the existing environmental setting at the time the NOP for an EIR is issued, by analyzing what are commonly referred to as “existing plus project”

conditions. Under Section 15125(a) of the CEQA Guidelines, the physical environmental conditions in the vicinity of the project at the time the NOP is published “will *normally* constitute the baseline physical conditions by which a lead agency determines whether an impact is significant” (emphasis added).

However, the CEQA Guidelines allow flexibility to utilize a different approach. The use of the term “normally” provides the lead agency with discretion to deviate from the standard time-of-review baseline.<sup>3</sup> As the California Supreme Court recently explained, “[n]either CEQA nor the CEQA Guidelines mandates a uniform, inflexible rule for determination of the existing conditions baseline.”<sup>4</sup>

The following text in DPEIR Section 3.1, “Approach to Environmental Analysis,” describes the establishment of environmental baseline for analysis:

The “Environmental Setting” section describes the physical environmental conditions assumed in this PEIR for analyzing the effects of the CVFPP. The environmental setting generally consists of the existing physical environment as of October 27, 2010, the date when DWR published the notice of preparation (NOP) to prepare an EIR for the CVFPP and filed it with the State Clearinghouse. Under CEQA, baseline environmental conditions are typically set at the time the NOP is published (CEQA Guidelines, Section 15125(a)). However, baseline information may describe conditions at a different time, such as if the most recent data available are from a year before the NOP was published.

In each topical section of the PEIR, the environmental baseline is set based on the best available information describing the existing conditions at the time that the NOP was published, as well as practical considerations related to the environmental topic. Water resources issues affected by hydrology are typically considered in light of a record of flows that vary over an historical period. Biological baselines are set based on the best available information from data sets such as the CNDDDB, which in turn are made up of data collected from studies over a large geography and over a period of many years.

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<sup>3</sup> See *Fat v. County of Sacramento*, 97 Cal. App. 4th 1270, 1278 (2002).

<sup>4</sup> *Cmtys. for a Better Env't v. S. Coast Air Quality Mgmt. Dist.*, 48 Cal. 4th 310, 328 (2010).

**G\_CONSERVE1-15**

The CVFPP was developed over a 4-year period based on the best information available to DWR at the time that the plan was prepared. The 2000 Census contained the most relevant and available data on population and demographics covering the large area subject to the CVFPP. As stated in Master Response 14, DWR and the Board are the State lead agencies for implementing the CVFPP and preparing the 5-year CVFPP updates. CVFPP consistency is not a requirement of SB 5, and DWR and the Board retain flexibility in future activities; however, the State intends for all major flood management programs and projects in the Central Valley to be planned and implemented in a manner generally consistent with the vision, goals, and provisions of the CVFPP. DWR will also work closely with USACE and the Board to develop the federal *Central Valley Integrated Flood Management Study* and State basin-wide feasibility studies. In addition, the State is partnering with USACE on several regional feasibility and post authorization scope-change investigations aimed at modifying the State-federal flood management system.

The Board has review and permitting authority under the California Water Code and CCR Title 23 for any project, including those resulting from the CVFPP, that may encroach upon, improve, alter, or affect adopted plans of flood control (including the State-federal flood management systems, regulated streams, and designated floodways under the Board's jurisdiction).

For additional details on post-adoption activity, see Master Response 14.

**G\_CONSERVE1-16**

The comment implies that the CVFPP would induce growth by providing increased levels of flood protection to portions of existing and planned communities that are exposed to flood risk. This issue was addressed in Section 6.1.2 of the DPEIR, which stated:

The proposed program would provide a higher level of flood protection for many areas currently protected by facilities of the State Plan of Flood Control. With the program, many urban and urbanizing areas that currently are protected against a 100-year flood (a flood with 1 percent risk of occurring in any given year) would receive protection against a 200-year flood (a flood with 0.5 percent risk of occurring in any given year). Also, some areas that currently lack a 100-year level of flood protection would be protected against a 100-year or greater flood after improvements to the flood control system were made. There are multiple restrictions on development in areas with less than a 100-year level of flood protection (e.g., FEMA regulations, State regulations,

local planning and zoning requirements, and consideration as a potentially significant impact under CEQA). Where the proposed program would increase flood protection sufficiently to provide protection equal to or exceeding the 100-year level to an area currently lacking such protection, this increase in flood protection could reduce or remove an obstacle to growth.

Each city and county has adopted a general plan consistent with State law. Some local general plans were prepared and adopted with the assumption that the plan areas would have a 100-year or greater level of flood protection, and these plans identified development opportunities accordingly. However, levees may have been reevaluated or methods for assessing levels of flood protection may have changed since general plan completion, resulting in the conclusion that those plan areas are no longer protected against a 100-year or greater flood. In these instances, if the proposed program were to improve the flood control system to protect communities against a 100-year or greater flood, cities and counties would simply be able to continue implementing development plans already reflected in their general plans. Increasing flood protection would remove an impediment to growth relative to existing conditions, but the growth that would occur would be consistent with local land use decisions as reflected in each city or county's general plan. Growth-inducing impacts that would result from adoption and implementation of general plans are addressed in general plan EIRs.

Some lands in the program study area that are not planned for development and lack protection against a 100-year flood would likely receive a 100-year or greater level of flood protection after completion of improvements to the flood control system. In this context, the proposed program could remove an impediment to growth, because it could cause development to increase by providing flood protection to areas not currently planned for development in city and county general plans. This scenario is most likely in rural or agricultural areas near urban development, where increasing flood protection for the nearby urban area would also increase flood protection for currently undeveloped areas. With the flood protection level removed as an impediment to growth in these undeveloped areas, the likelihood of future development, associated growth, and resulting environmental impacts increases. The proposed program reflects State policy to discourage urbanization in floodplains. The environmental impacts of such development would likely be among those typically associated with "greenfield" development. Examples of such impacts include increased traffic levels and air pollutant emissions, increased demand for utilities and public services, losses of agricultural land and

biological resources, potential adverse effects on cultural resources, and potential degradation of aesthetic resources.

Another potential effect of the proposed program is that, by reducing flood risks, the program is anticipated to protect existing developments and therefore help preserve the results of growth that has already occurred. Improved flood protection would likely reduce the frequency and severity of flood damage, which would reduce the need for reconstruction efforts following a flood, and any indirect growth inducement from those reconstruction activities would be reduced. These effects would not typically be considered to be growth inducing, but instead would generally benefit the environment.

***G\_CONSERVE1-17***

The commenter believes the Enhanced Flood System Capacity Alternative provides the best opportunity to address all eight objectives of the CVFPP. This alternative does not meet additional program objectives developed for the PEIR that reflect specific direction provided in the authorizing legislation (summarized in Chapter 1.0, “Introduction,” of the DPEIR). One statutory objective is to maximize Flood Risk Reduction Benefits within the Practical Constraints of Available Funds—Ensure that technically feasible and cost-effective solutions are implemented to maximize the flood risk reduction benefits given the practical limitations of available funding, and provide a feasible, comprehensive, and long-term financing plan for implementing the plan.

***G\_CONSERVE1-18***

As stated in Master Response 24, a review of the 142-page alternatives analysis in the DPEIR demonstrates that the alternatives were adequately described and the potential environmental impacts comprehensively analyzed. The standard articulated in the CEQA Guidelines and case law has been more than satisfied.

As it pertains to the linkage between flood management and water supply, as stated in Master Response 7, the CVFPP includes a high-level discussion on integrating water supply benefits with flood management improvements. The SSIA elements focus on public safety and improvement of flood management, consistent with the legislative direction and CVFPP primary goal; however, implementing these elements could improve water management because expanding floodways and the bypass system could improve the flexibility of reservoir operations and increase in-channel groundwater recharge. The SSIA describes potential opportunities for integrating water supply benefits with proposed flood management actions, but it does not include specific project recommendations related to water

supply because of the need for future site-specific proposals and analyses. During post-adoption activities (regional flood management planning and development of basin-wide feasibility studies), additional details will be developed, including specific water management features as part of multi-benefit projects, in collaboration with interested local and regional agencies and organizations.

With respect to the level of detail of the alternatives, see response to comment G\_CONSERVE1-07 and Master Response 23. DWR believes the DPEIR meets CEQA requirements for a program-level EIR as stated in Master Response 23.

### ***G\_CONSERVE1-19***

The SSIA was assembled with elements of each of the three preliminary alternatives, including the Enhanced Flood System Capacity Alternative. As stated in page 2-25 in Section 2.7, "Preferred Approach—Meeting Central Valley Flood Protection Plan Goals," of the draft CVFPP:

Based on relative comparisons of the three preliminary approaches, the Enhance Flood System Capacity Approach best meets and exceeds the CVFPP Goals, but requires the highest level of investment and significant institutional changes. As shown in Tables 2-5 and 2-6, among the three preliminary approaches the Enhance Flood System Capacity Approach is the only approach that substantially improves resiliency to climate change while meeting the objectives delineated in the authorizing legislation in the highest degree. However, each approach highlights opportunities to achieve the goals in different ways, to different degrees, and at different costs. The Enhance Flood System Capacity Approach has a substantially high capital cost, but lower levee operations and maintenance costs compared to the other approaches. The Protect High Risk Communities Approach is the least costly approach, and would result in substantial reduction in flood risks to urban areas and small communities.

Further, on page 2-26, the draft CVFPP states:

Examination of the performance of preliminary approaches highlights the need to develop a State flood management strategy that combines the strengths of each of the three preliminary approaches into a single approach—the SSIA. The examination considered five distinguishing characteristics that are important from a State investment perspective: (1) life safety, (2) vibrant agricultural economy, (3) reduction in economic losses, (4) ecosystem restoration and enhancements, and (5) cost to implement.

The three preliminary approaches presented above contributed to these characteristics in different degrees. For example, the Achieve SPFC Design Flow Capacity Approach would provide protection for rural-agricultural areas, with less emphasis on an urban level of flood protection and ecosystem benefits. The Protect High Risk Communities Approach would achieve 200-year (0.5 percent annual chance) urban protection and associated life safety benefits, but would not contribute to rural-agricultural flood risk reduction. The Enhance Flood System Capacity Approach would provide multiple benefits, but at a high cost. The SSIA also incorporates evolving State policies and guidance on a number of issues important to effective flood management in the Central Valley.

Therefore, to suggest that as a result of the preliminary cost analysis all aspects of the Enhance Flood System Capacity Approach were eliminated from the CVFPP is incorrect. In fact, the elements of the Enhance Flood System Capacity Approach that DWR determined to be most beneficial were included in the SSIA, and will be further considered, refined, and implemented during the post-adoption activities.

As stated in Master Response 7, the SSIA is a conceptual plan for flood system improvements, and additional post-adoption work is needed to refine its individual elements. Anticipated post-adoption activities include regional flood management planning, development of basin-wide feasibility studies and the CVFPP Financing Plan, completion of project-level proposals and environmental compliance, development of the Conservation Strategy, and State and USACE permitting.

Some elements of the SSIA have already been implemented (through the Early Implementation Projects Program since 2007, for example). Others may be accomplished before the first update of the CVFPP in 2017, and many will require additional time to fully develop and implement. Ongoing and new planning studies, engineering, feasibility studies, environmental review, designs, funding, and partnering are required to better define, and incrementally fund and implement, elements of the SSIA during the next 20–25 years.

For additional details, see Master Response 7.

As stated in Master Response 9, specific project features ultimately implemented for the SSIA will depend on a host of factors. These factors include the results of detailed project feasibility studies; designs and cost estimates; environmental benefits and impacts; interaction with other local projects and system improvements; participation by local, State, and federal agencies in project implementation; and changing physical, institutional,

and economic conditions. Costs presented in the 2012 CVFPP are preliminary planning-level estimates. The actual costs of these elements will depend on the specific projects that are justified by feasibility studies, project scopes, implementation times, future economic and contractor-bidding conditions, and many other factors. Funding sources for SSIA projects will vary according to factors such as the type of project or program, beneficiaries, availability of funds, and project or program urgency. Cost-sharing among State, federal, and local agencies may also change depending on project objectives and agency interests. Post-adoption activities (regional flood management planning, development of basin-wide feasibility studies, and development of a financing plan for the CVFPP) will further develop and refine additional project-specific details on cost, feasibility, funding, cost sharing, and local capacity to pay.

For additional details, see Master Response 9.

#### ***G\_CONSERVE1-20***

As stated in Master Response 9, the SSIA was formulated by assembling the most promising, affordable, and timely elements of the three preliminary approaches to best meet legislative requirements and identified CVFPP goals. The SSIA reflects a balanced and fiscally responsible approach, which will be developed further as DWR completes more detailed studies and designs for site-specific capital improvements and develops other, systemwide flood improvement projects. The Central Valley Flood Protection Act of 2008 (SB 5) requires a systemwide approach for developing the CVFPP (CWC Section 9603) and requires inclusion of multiple benefits, where feasible (CWC Section 9616). Not all potential SSIA benefits have been detailed or quantified (e.g., avoided damage to infrastructure and/or life loss, ecosystem restoration), and the planning-level cost estimates remain preliminary; therefore, it is inappropriate to analyze the benefit-cost ratio using information contained in the high-level 2012 CVFPP. During post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, and development of a financing plan for the CVFPP), DWR will refine the physical elements of the CVFPP and confirm their feasibility, including the costs and benefits of site-specific improvements.

For additional details on the SSIA, see Master Response 9.

As stated in Master Response 19, three additional program objectives were developed for the PEIR and reflect specific direction provided in the authorizing legislation (summarized in Chapter 1.0, “Introduction,” of the DPEIR). These statutory objectives are as follows:



### Statutory Objectives

- **Maximize Flood Risk Reduction Benefits within the Practical Constraints of Available Funds**—Ensure that technically feasible and cost-effective solutions are implemented to maximize the flood risk reduction benefits given the practical limitations of available funding, and provide a feasible, comprehensive, and long-term financing plan for implementing the plan.
- **Adopt the CVFPP by July 1, 2012**—Complete all steps necessary to develop and adopt the CVFPP by July 1, 2012, or such other date as may be provided by the Legislature.
- **Meet Multiple Objectives Established in Section 9616 of the California Water Code, Wherever Feasible.**

The Enhanced Flood System Capacity Alternative did not maximize the flood risk reduction benefits given the practical limitations of available funding.

### **G\_CONSERVE1-21**

The Enhanced Flood System Capacity Approach alternative was evaluated in the DPEIR at a level comparable to the other alternatives fully considered in Chapter 5.0, “Alternatives.” As it pertains to aquatic biological resources, the DPEIR stated:

The Enhance Flood System Capacity Alternative could involve constructing new or expanded reservoirs and provides a greater emphasis than the proposed program on constructing new bypasses, changing water operations at existing reservoirs, and widening floodways. This alternative would implement the same maintenance regime as the proposed program, and impacts of system maintenance on aquatic biological resources would be similar. New reservoirs would have maintenance requirements not included in the proposed program; however, impacts on aquatic biological resources would result primarily from constructing and operating a reservoir in a location where one does not currently exist, and not necessarily from maintaining that reservoir once it is in place.

The Enhance Flood System Capacity Alternative would provide increased flexibility in reservoir operations exceeding the greater flexibility included in the proposed program, and new reservoirs would be operated. As described for the proposed program in Subsection 3.5.5, “Environmental Impacts and Mitigation Measures for LTMA,” of Section 3.5, “Biological Resources—Aquatic,” it is unclear how modified flows below reservoirs would affect aquatic biological

resources. Net effects on various waterways could be beneficial, adverse, or neutral depending on the specific circumstances. Therefore, it is not known whether implementing the Enhance Flood System Capacity Alternative would result in less of a beneficial effect, less of an adverse effect, or similar effects relative to the proposed program.

The Enhance Flood System Capacity Alternative would provide a level of flood protection slightly greater than that provided by the proposed program (see Table 5-1); as a result, the reduction in potential flood-related impacts on aquatic biological resources would also be slightly greater. This alternative would provide somewhat greater opportunities for ecosystem restoration than the proposed program, which would result in correspondingly greater benefits to aquatic biological resources. The greater level of floodplain expansion associated with the Enhance Flood System Capacity Alternative (via setback levees, bypass widening, and new bypasses) would improve ecosystem functions, fish passage, and the quantity, quality, and diversity of habitats to a greater degree than under the proposed program. However, more and larger new facilities could be constructed under this alternative, resulting in greater impacts on aquatic biological resources. Mitigation measures similar to those recommended for the proposed program could be implemented; however, it is uncertain whether those measures would be sufficient to reduce all impacts on aquatic biological resources to a less-than-significant level for reservoirs and all other large new facilities associated with this alternative.

The Enhance Flood System Capacity Alternative would result in greater benefits to aquatic biological resources than the proposed program, but also has a greater potential to result in adverse effects. Therefore, the overall impact of this alternative on aquatic biological resources would be greater than that of the proposed program.

As it pertains to terrestrial biological resources, the DPEIR stated:

The Enhance Flood System Capacity Alternative could involve constructing new or expanded reservoirs and provides a greater emphasis than the proposed program on constructing new bypasses, changing water operations at existing reservoirs, and widening floodways. This alternative would implement the same maintenance regime as the proposed program, and impacts of system maintenance on terrestrial biological resources would be similar. New reservoirs would have maintenance requirements not included in the proposed program; however, impacts on terrestrial biological resources would result primarily from constructing and operating a reservoir in a location

where one does not currently exist, and not necessarily from maintaining that reservoir once it is in place.

The Enhance Flood System Capacity Alternative would provide increased flexibility in reservoir operations exceeding the greater flexibility included in the proposed program, and new reservoirs would be operated. It is unclear how possible substantial modifications to flows below new and existing reservoirs would affect terrestrial biological resources. Net effects in various waterways could be beneficial, adverse, or neutral depending on the specific circumstances. Therefore, it is not known whether implementing the Enhance Flood System Capacity Alternative would result in less of a beneficial effect, less of an adverse effect, or similar effects relative to the proposed program.

This alternative would provide a level of flood protection slightly greater than that provided by the proposed program (see Table 5-1); as a result, the reduction in potential flood-related impacts on terrestrial biological resources would also be slightly greater. The Enhance Flood System Capacity Alternative would provide somewhat greater opportunities for ecosystem restoration than the proposed program, which would result in correspondingly greater benefits to terrestrial biological resources. The greater level of floodplain expansion associated with the Enhance Flood System Capacity Alternative (via setback levees, bypass widening, and new bypasses) would improve ecosystem functions and the quantity, quality, and diversity of habitats to a greater degree than under the proposed program. However, more and larger new facilities could be constructed under this alternative, resulting in greater impacts on terrestrial biological resources. Mitigation measures similar to those recommended for the proposed program could be implemented; however, it is uncertain whether those measures would be sufficient to reduce all impacts on terrestrial biological resources to a less-than-significant level for new reservoirs and all other large new facilities associated with this alternative.

The Enhance Flood System Capacity Alternative would result in greater benefits to terrestrial biological resources than the proposed program, but also has a greater potential to result in adverse effects. Therefore, the overall impact of this alternative on terrestrial biological resources would be greater than that of the proposed program.

Portions of this comment address the merits of the project and alternatives, expressing a preference for inclusion of elements of the Enhanced Flood System Capacity Alternative into the SSIA. These comments do not raise specific questions or information regarding the adequacy of the

environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR. The comments are noted.

***G\_CONSERVE1-22***

As stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to include multiple objectives, where feasible, when proposing improvements to flood management facilities, including opportunities and incentives for expanding or increasing the use of floodway corridors (CWC Section 9616(a)(12)). The potential for recreational use of the flood control system has long been recognized. The SSIA involves floodplain reconnection and floodway expansion, which would improve ecosystem functions, fish passage, and the quantity, quality, and diversity of natural habitats, all of which would contribute to an increase in recreation opportunities and augment the aesthetic values of those areas. Expanding habitat areas would increase opportunities for fishing, hunting, and wildlife viewing. Recreation-related spending associated with increased use by visitors can be an important contributor to local and regional economies. During post-adoption activities (regional flood management planning and development of basin-wide feasibility studies), DWR will work with local and regional implementing agencies and partners to refine CVFPP elements, including developing additional details on site-specific recreation features as part of multi-benefit projects.

For additional details on multi-benefit projects, see Master Response 7.

***G\_CONSERVE1-23***

These comments do not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR. The comments are noted.

# G\_CSACETAL1



CALIFORNIA STATE ASSOCIATION OF COUNTIES  
1100 K Street, Suite 101  
Sacramento, CA 95814  
916/327-7500



REGIONAL COUNCIL OF RURAL COUNTIES  
1215 K Street, Suite 1650  
Sacramento, CA 95814  
916/447-4806



LEAGUE OF CALIFORNIA CITIES  
1400 K Street  
Sacramento, CA 95814  
916/658-8200

February 24, 2012

The Central Valley Flood Protection Board  
California Natural Resources Agency  
3310 El Camino Avenue, Room 151  
Sacramento, California 95821  
ATTN: Ms. Nancy Moricz  
Transmitted via email to: [cvfppcom@water.ca.gov](mailto:cvfppcom@water.ca.gov)

## RE: Comments on the Central Valley Flood Protection Plan

Dear Ms. Moricz:

On behalf of the California State Association of Counties (CSAC), the Regional Council of Rural Counties (RCRC) and the League of California Cities (LCC), we appreciate the opportunity to comment on the Central Valley Flood Protection Plan (CVFPP). Collectively, our organizations represent all of California's 483 cities and 58 counties. As representatives of local governments, our organizations are committed to creating healthy, safe and sustainable communities. We request that the following comments be taken under consideration when considering any changes to the CVFPP.

### **Compliance with SB5 by Central Valley Cities and Counties**

Preparation of the CVFPP was a requirement of the SB5 suite of legislation, but the CVFPP lacks an articulate discussion/explanation on how it will facilitate compliance by cities and counties within its mandated time frames. The CVFPP indicates that implementation of the State System-wide Investment Approach (SSIA) will extend well beyond the 2015 deadline required by SB5 for cities and counties to begin implementation of the Plan. However, it does not discuss how cities and counties are to comply with the Plan in the interim, nor the ramifications and impacts on Central Valley communities if they are unable to do so.

For cities and counties to comply with the SB5 provisions regarding 200-Year flood protection findings for new development, they must have access to 200-Year hydrologic, hydraulic and floodplain data well in advance of the mandated timelines. Local agencies expected the CVFPP to provide much if not all of that data. However, the CVFPP does not provide this data. We had expected that CVFPP would have contained, as a minimum, the elements listed below:

- 200-yr. without-project and with-project design hydrographs and water surface profiles along all leveed rivers and streams (both "project" and "non-project" systems);
- 200-yr. without-project and with-project floodplain maps;
- Detailed identification of the Preferred Plan for System-wide Improvements to include major flood protection facilities such as reservoirs, bypasses, and main stem levees which will provide urban and urbanizing areas 200-Year flood protection by 2025.
- A detailed implementation Plan for the System-wide Improvements and local flood protection improvements, including a funding plan which identifies federal, state and local funding allocations, and any "gaps" between estimated costs and available funding sources.

The Board should require that the CVFPP be amended to address these issues.

G\_CSACETAL1-01

G\_CSACETAL1-02

G\_CSACETAL1-03

**Reliance on Completion of Major “System Improvements”**

Providing 200-year protection for many of the central valley communities will depend on the completion of major “System Improvements” (as identified in the CVFPP) that are under control of the State and/or Federal governments and will likely not be completed for several years following the 2015 mandate of SB 5. These improvements include dam modifications, bypasses, and main stem levees. Cities and counties should not be penalized, nor should they be required to expend limited public funds to construct potential “throw away” improvements to provide 200-year protection in the interim. The Plan should address how cities and counties can comply with the Plan given that many of these major system improvements will not be completed by 2015.

G\_CSACETAL1-04

**Availability of Funding for Cities and Counties to Comply with SB5**

To facilitate local agencies’ ability to move forward with the planning efforts to comply with SB 5, grant programs should be created for cities and counties to develop 200-year floodplain maps and improvements. The Plan should specifically address what, if any, grant funding will be made available for these efforts. It should also address how cities and counties are to fund these efforts in the absence of such funding, and the ramifications if they are unable to do so.

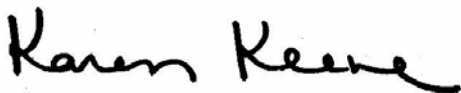
G\_CSACETAL1-05

**Implementation of New Levee Design Standards and Findings Procedures**

As required by SB5, the Department of Water Resources has been developing new levee design standards and findings procedures for implementation of the law by cities and counties. City and county officials have been involved in the development of these documents through participation in work groups, workshops and teleconferences. Although these documents are still being developed, several of our members have expressed concerns that many of the requirements contained in these may not be implementable given time and funding constraints. One issue of particular concern is the requirement that the 200-year protection requirement of SB5 apply to interior drainage areas (i.e. areas not protected by levees). The Board should evaluate whether the requirements contained in these documents are, from a practical perspective, implementable by cities and counties. And, in cases where it is a matter of an interpretation of the statute as to whether these requirements should even apply, the Board should evaluate these specific issues as well.

Thank you for your consideration. Should you have any questions regarding our comments please contact Karen Keene at 916-327-7500 ext. 511, Kathy Mannion at 916 447-4806, or Kyra Ross at 916-658-8200.

Sincerely,



Karen Keene  
CSAC Senior Legislative Representative



Kathy Mannion  
RCRC Legislative Advocate



Kyra Ross  
LCC Legislative Representative

## California State Association of Counties (and others)

### **Response**

#### **G\_CSACETAL1-01**

The comment is noted. The CVFPP study area encompasses portions of the RCRC area of representation.

#### **G\_CSACETAL1-02**

As stated in Master Response 5, DWR is attempting to provide as much useful information related to 200-year floodplains as possible given its current funding and authority to use available funding. DWR is developing 200-year floodplain maps through its CVFED Program for areas protected by the SPFC, based on potential flows in the Sacramento and San Joaquin rivers (mainstem and major tributaries). Depending on the source of flooding, these maps may or may not be sufficient to support cities and counties in making their findings related to an urban level of flood protection. The cities and counties are encouraged to consult the *Draft Urban Level of Flood Protection Criteria* document for additional detail at <http://www.water.ca.gov/floodsafe/leveedesign/>.

#### **G\_CSACETAL1-03**

As stated in Master Response 5, State law (SB 5) requires cities and counties to make findings on certain land use decisions in relation to an urban level of flood protection (CGC Sections 65865.5, 65962, and 66474.5). Separately, the law required DWR to prepare preliminary 100-year and 200-year flood-frequency maps using available information and make them available to cities and counties in 2008 (CWC Sections 9610(a)(1), 9610(a)(2), and 9610(a)(3)).

The CVFPP focuses on SPFC facilities (including consideration of pertinent non-SPFC levee improvements in urban areas), which relate primarily to flooding of the mainstem Sacramento and San Joaquin rivers. DWR recognizes that in some circumstances, the information and planned improvements included in the SSIA may not be sufficient for cities and counties to make findings regarding an urban level of flood protection without additional analysis. Cities and counties should consider the criteria in the *Draft Urban Level of Flood Protection Criteria* document (April 2012) for more detail. Further, cities and counties outside the SPFC planning area may not find pertinent geographic information in the CVFPP for their land use planning purposes, but could consider the goals, policies, and objectives for their actions.

***G\_CSACETAL1-04***

As stated in Master Response 15, up to \$1.7 billion of Propositions 1E and 84 bond funding will be available during the next 5 years for CVFPP-related projects. Use of bond funds will be prioritized based on the severity of flood risks, considering proposed project costs and benefits and contributions to basin-wide solutions (consistent with the CVFPP).

***G\_CSACETAL1-05***

As stated in Master Response 5, SB 5 did not provide specific enforcement authority for requirements regarding the urban level of flood protection. The Board has review and comment authority in one situation related to the definition of “adequate progress.” CGC Section 65007(a)(2)(B) grants the Board the ability to make a finding that an agency is making adequate progress even when it is not meeting the time frame set in CGC Section 65007(a)(2)(A), if the requirements are not being met because of an insufficient State appropriation based on a prior agreement. The circumstances for not meeting the specified time frame would be considered by the Board at the time it evaluate progress toward plan implementation.



CENTRAL VALLEY FLOOD PROTECTION BOARD

G\_CSC1

REQUEST TO SPEAK AT HEARING

Date April 19, 2012 Name Woody Yerxa, President

Phone (optional) E-mail (optional)

Affiliation Colusa Shooting Club

Address (optional) P.O. Box 1082, Colusa, Ca. 95932

I wish to speak to the Board about agenda item number(s) CVFPP DPEIR

I prefer to submit written comments instead of addressing the Board. Please see my comments below.

If you would like to be added to the CVFPP e-mail list, please check this box.

Verbal comments on both the CVFPP and the DPEIR can be presented to the Board at the hearing. Written comments can also be submitted to Board staff at the hearing or sent to the addresses below. If you would like to submit a comment electronically, please send them to the e-mail addresses below or see the Board's website for more information: http://www.cvfpp.ca.gov/.

Central Valley Flood Protection Plan (CVFPP): Central Valley Flood Protection Board Attn: Nancy Moricz 3310 El Camino Ave., Room 151 Sacramento, CA 95821

Draft Program Environmental Impact Report (DPEIR): Department of Water Resources Attn: Mary Ann Hadden, c/o MWH 3321 Power Inn Road, Suite 300 Sacramento, CA 95826

E-mail: cvfppcom@water.ca.gov

E-mail: DPEIRcomments@water.ca.gov

DPEIR Comments must be received by April 20, 2012 by 5 pm.

COMMENT CARD

Comments apply to:

Central Valley Flood Protection Plan Draft Program Environmental Impact Report (DPEIR) Both

G\_CSC-01

We are landowners and have been Stewards of the National Habitat in the Butte Sink

since 1892. We are part of the 12,000 acres of Natural Habitat in the Pacific Flyway.

We are strongly opposed to the diversion of water from the eastside of the Sacramento Valley

through the Cherokee Canal widening project. This action will substantially degrade

the natural habitat in our section of the Butte Sink and Pacific Flyway which will have

adverse impact on the Butte habitat and the wildlife that utilize this area. This

includes the property and easement under the control of the Fish and Wildlife

Service.

Please continue on back of this card, if needed.



## **Colusa Shooting Club**

### ***Response***

#### ***G\_CSC1-01***

As stated in Master Response 1, the CVFPP recommended approach—the SSIA—includes proposals for new bypasses and expansions as a potentially cost-effective, systemwide approach to (1) provide flood protection benefits to large areas throughout the SPFC planning area (including rural-agricultural areas, small communities, and urban areas); (2) provide opportunities to improve ecosystem functions and continuity and contribute to mitigation for proposed structural improvements, as well as mitigation for operations and maintenance of flood management facilities; and (3) provide flexibility to adapt to future change in climate and improved system resiliency.

Improvements to ecosystem functions would be provided to mitigate impacts of constructing, operating, and maintaining bypass modifications. Details of such mitigation will be defined in the future as part of site-specific project planning and analysis.

April 5, 2012

# G\_FGV1

Central Valley Flood Protection Board  
California Natural Resources Agency – State of California  
3310 El Camino Avenue, Room 151  
Sacramento, CA 95821

Board Members:

G\_FGV1-01 This document is a letter of protest against the proposed “Central Valley Flood Protection Plan”.

This plan does indeed protect those areas that have been irresponsibly built in natural flood areas—built by greedy land developers, who had full knowledge of the probable flooding consequences. However, it does NOT protect those who live in a highly productive agricultural area.

G\_FGV1-02 Your proposals include taking our land for widening levees, with the purpose of flooding our farm land, homes, equipment, and structures, in the event that the ‘protected areas’ are threatened.

G\_FGV1-03 The Sacramento and Feather rivers have not been dredged for many years and this has caused even shallower riverbeds each year. That, together with the lack of levee maintenance, has caused the increased potential for flooding. Why not do your jobs?—maintain the existing levees and dredge the rivers, which in our opinion is a more cost-effective option.

G\_FGV1-04 It is hard to imagine that your proposal is the overall most cost-effective, since it would entail the buying of vast quantities of land and spending multi-millions in the construction of new levees.

Sincerely,

Furlan Joint Venture  
Sutter Basin Landowners

  
Jane Osborne

  
Ann C. Byrd

## **Furlan Joint Venture**

### ***Response***

#### ***G\_FGV1\_01***

As stated in Master Response 4, the Central Valley Flood Protection Act of 2008 established legislative requirements for the CVFPP. The legislation directs DWR to consider structural and nonstructural methods for providing an urban level of flood protection (200-year or 0.5 percent chance) to current urban areas (CWC Sections 9614(i) and 9616(a)(6)), and encourages wise use of floodplains through a better connection between State flood protection decisions and local land use decisions (CWC Section 9616(a)(5)).

The SSIA identifies minimum flood protection targets when State investments are made to protect public safety in urban areas and small communities (protection from 200- and 100-year flood events, respectively). State investments under the SSIA would be prioritized commensurate with risks to people and property and opportunities to achieve multiple benefits.

#### ***G\_FGV1\_02***

Master Response 2 addresses land conversion issues associated with implementation of the CVFPP. As noted, the CVFPP outlines a broad range of potential physical and institutional projects and actions to reduce flood risks. Some actions identified in the SSIA can be implemented within the existing footprint of the SPFC, while others will require new lands and/or easements. Because the SSIA was developed at a conceptual or program level, it does not identify specific projects; therefore, lands or properties that may be needed to implement the program are unknown at this time.

#### ***G\_FGV1\_03***

As stated in Master Response 6, improving O&M is a supporting goal of the CVFPP. The SSIA includes elements to address and improve O&M at existing facilities as part of residual risk management. These elements include identifying and repairing after-event erosion, developing and implementing enhanced O&M programs and practices, and forming regional O&M organizations and sustained investments in flood system maintenance (management of the Sacramento River channel and levees, bank protection, and rehabilitation of flood structures).

***G\_FGV1-04***

Master Response 2 addresses the level of information regarding the flood control improvements that are available at this time. The CVFPP outlines a broad range of potential physical and institutional projects and actions to reduce flood risks. Some actions identified in the SSIA can be implemented within the existing footprint of the SPFC, while others will require new lands and/or easements. Because the SSIA was developed at a conceptual or program level, it does not identify specific projects; therefore, any lands or properties that may be needed to implement the program are unknown at this time. This initial estimate will be refined during follow-on studies and further analysis conducted after adoption of the CVFPP. It is anticipated that land uses within any expansions of the flood management system would be a mix of flood facilities and agricultural and environmental conservation uses; however, the exact amount and geographical distribution of these land uses will require further analyses as future specific projects are considered and evaluated.

*Friends of the*



*Sacramento*  
*River Greenway*

(Supporting public access and  
recreation along the Sacramento River)

**G\_FSRG1**

April 20, 2012

*VIA E-MAIL (cvfppcom@water.ca.gov) & U.S. MAIL*

Ms. Nancy Moricz  
Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento, CA 95821

Re: Comments to the December 2011 Public Draft of the  
2012 Central Valley Flood Protection Plan

Dear Ms. Moricz:

G\_FSRG1-01

Please accept the accompanying comments from the Friends of the Sacramento Greenway (“FSRG”) to the December 2011 Public Draft of the 2012 Central Valley Flood Protection Plan (“CVFPP”), and please convey them and this letter to the Central Valley Flood Protection Board for its consideration.

On February 23, 2012, FSRG provided comments to the Working Draft of Proposed Technical Amendments to Title 23 of the California Code of Regulations. We attach and incorporate those comments here. We also provide additional discussion below to explain how our prior comments pertain to the CVFPP.

G\_FSRG1-02

Our comments focus on two issues: (1) the CVFPP’s failure to address the flooding risks posed by existing encroachments on levees and the role that those encroachments now play in hindering access to the levees for the public and public agencies; and (2) the role that paved multi-use public trails (described as “bicycle trails” in regulations) could play in enhancing access, and in helping the State find alternate funding and interest for constructing at least an interim alternative to fully compliant all-weather access roads on and to levees.

G\_FSRG1-03

Our continuing research into existing encroachments in the Pocket and Little Pocket neighborhoods of Sacramento causes us great concern about the risk these encroachments pose for residents. We have not researched encroachments in other areas of the Central Valley, but we assume that problems plaguing the Pocket and Little Pocket exist elsewhere. We would be happy to share our findings with the Board or its staff. While the CVFPP incorporates many laudable goals, the failure to address the simple fix of removing or mitigating these dangerous encroachments is a serious oversight.

G\_FSRG1-04

On the other hand, two stated goals of the CVFPP are the establishment of all-weather access roads on levee crowns, and the search for cost-sharing opportunities to accomplish CVFPP's goals. As detailed in the attached letter, paved multi-use trails provide an alternative when state or federal funding is not available for the State to construct all-weather access roads. Even in difficult economic times like these, local interest and funding sources (including private funds) are often available to build multi-use trails because of the societal benefits these trails provide, such as improving public health and recreation, decreasing demand on streets and roads, and reducing air pollution. The CVFPP would benefit from recognizing and encouraging this synergy.

G\_FSRG1-05

Decades ago, the Reclamation Board approved the first of several fences and gates in the Pocket area over the objection of DWR that these encroachments would increase flooding risks. The Reclamation Board also gave scant attention to the public's right to access the river under the public-trust doctrine. As a result of the misjudgment in approving fences and gates, landowners now assert private property rights on levees that the landowners cannot justifiably claim. Furthermore, landowners have flouted the conditions of their encroachment permits and have augmented encroachments and added new encroachments. Now, with a false sense of privacy and security that they cannot legally claim, these landowners vociferously oppose any increased access to the levee, even the increased access that would bring the Pocket and Little Pocket in compliance with access standards set by the U.S. Army Corps of Engineers.

Given the increased flooding risks posed by existing encroachments, and given landowners' reliance on non-conforming and even unpermitted encroachments to staunchly oppose improved levee access, the CVFPP must incorporate goals of removing and mitigating all such encroachments.

G\_FSRG1-06

Our comments, submitted herewith on the CVFPB's Excel form, provide a few, minimal additions to the CVFPP that will help to direct future actions to address these issues. We would be happy to answer any questions or concerns by the Board or its staff and to provide any additional information that the Board desires. In the meantime, we sincerely appreciate your consideration of these comments.

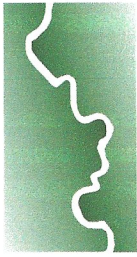
Very truly yours,

/s/

James E. Houpt



*Friends of the*



*Sacramento*  
*River Greenway*

(Supporting public access and  
recreation along the Sacramento River)

February 23, 2012

Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento, CA 95821

Re: Comments to the Working Draft of Proposed Technical Amendments to  
Title 23, May 2011

Dear Mr. President and Honorable Board Members:

G\_FSRG1-07

We write as members of the Friends of the Sacramento River Greenway (“FSRG”) to provide comments on the Working Draft of Proposed Technical Amendments to Title 23 of the California Code of Regulations (“Working Draft”).

FSRG’S INTEREST

G\_FSRG1-08

FSRG is an unincorporated association of individuals who seek the completion of the Sacramento River Greenway, a multi-use trail envisioned by the California State Lands Commission for both sides of the Sacramento River. Consistent with that goal, FSRG is pursuing the completion of the Sacramento River Parkway, the plan by the City of Sacramento for a multi-use trail on the Sacramento side of the river. More immediately, FSRG is lobbying for and researching the means to complete the Parkway through the Little Pocket and Pocket neighborhoods.

G\_FSRG1-09

In addition to our interest in the Greenway and the Parkway, our members are residents of the Land Park, Little Pocket, and Pocket neighborhoods. As such, we have a vital interest in flood protection. Therefore, we fully support the Board’s efforts, and we recognize and appreciate that Board’s paramount concern must be flood protection. However, as explained below, we believe that the Greenway, the Parkway, and similar projects may provide synergies that allow the flood protection system to provide multiple-use benefits and cost-sharing opportunities that promote not just public safety, but also the public’s need for transportation and recreation.

G\_FSRG1-10

FSRG anticipates that it will submit public comments on the pending draft of the Central Valley Flood Protection Plan, and that our comments here will be fully consistent with and complementary of our comments on the CVFPP. We will also remain involved as the Board continues its consideration of these issues.

## PRELIMINARY COMMENTS

G\_FSRG1-11

### The Public Trust Doctrine

We note again that flood prevention must be CVFPB's priority over all other concerns. However, our review of past actions by the Reclamation Board gives us concern that prior Boards may have ignored an important aspect of California law and policy: the public trust doctrine. We respectfully recommend that the Board consider this issue as it reviews our comments and as it discusses the Working Draft.

As embodied in the California Constitution since 1879, the public trust doctrine protects our right to access waterways such as the Sacramento River:

No individual, partnership, or corporation, claiming or possessing the frontage or tidal lands of a harbor, bay, inlet, estuary, or other navigable water in this State, shall be permitted to exclude the right of way to such water whenever it is required for any public purpose, nor to destroy or obstruct the free navigation of such water; and the Legislature shall enact such laws as will give the most liberal construction to this provision, so that access to the navigable waters of this State shall be always attainable for the people thereof.

Cal. Const. X, § 4 (public right of access to waterways)). The constitutional provision is an aspect of the public trust doctrine, which dates to the founding of our great country and was embraced by California when the state entered the union in 1850. The legislature designated the California State Lands Commission in 1938 as the primary guardian of public trust lands. Thus, in addition to encroachment permits from the Board, residents along waterways like the Sacramento River need a lease from the Commission for boat docks and similar installations because these installations are on public land.

Though the Commission has the legislative charge to protect public trust lands, all agencies – including this Board – are under the same duty to protect and enforce the public trust doctrine. *See National Audubon Society v. Superior Court*, 33 Cal. 3d 419, 446-47 (1983) (explaining that public trust doctrine imposes “an affirmative duty to take the public trust into account in the planning and allocation of water resources, and to protect public trust uses whenever feasible”; actions should not cause “unnecessary and unjustified harm to trust interests”).

Residents of the Pocket and Little Pocket neighborhoods installed some fences down to the river's waterline. To the extent these fences were approved by past Boards, they failed to protect and enforce the public's right. If the Board allows these fences to remain without a plan to phase them out, the Board may well deny a vital right to the public. These fences not only increase flooding risk, as the Board's staff and the Army Corps of Engineers have testified, the fences have given a relative handful of residents – approximately 111 homes – a false belief that they have a privacy and security right that is not subject to compromise. Rather than providing for their own privacy and security, they have used the levees as their backyard. Then they argue that their false right trumps the public's right. Regrettably, by their seeming failure to consider the public trust when granting encroachment permits years ago, past Boards may have been complicit in creating this attitude. When the fences increase flood risk for the thousands of residents in the Pocket and Little Pocket, this Board should not be complicit by allowing the fences to remain without a plan for their ultimate removal.

We urge the Board to coordinate with the Commission in the future to ensure that the public trust is preserved and protected, and to consult with the Commission to ensure that past actions are consistent with the interests protected by the public trust doctrine.

#### The Risks of Existing Fences and Gates

By allowing the continued existence of fences and gates, and by creating a presumption in favor of new gates, the Working Draft fails to address flooding risks that the Board's staff and others have complained about for a number of years. FSRG does not understand how the Board can allow this risky situation to continue, especially when many of the fences also appear to violate the public's rights as embodied in the public trust doctrine.

Your staff have complained over a long period of time that the fences and gates exacerbate flooding risks. In 2005, your former chief engineer, Steven Bradley, testified against a fence application:

“Staff is recommending denial of this. Like I said, the fence is really – is not for flood control and it does impact. It's just one more fence that's going across the levee. We already have more than we want down there. Every time the inspectors got to go through there they unlock the fence, have to relock it and go on. Have to make sure they have those keys. Have to make sure somebody doesn't put a lock on there that's not one of the state locks or compatible with a state lock, which happens in a lot of our areas, not just the Pocket area. But people do, especially in the ag areas, a lot farmers will slap their own lock on.

“Like I said before, the removable sections of the fence require active management during a flood event. That means somebody has to be there, has to remember to remove those fences so that they don't collect debris and block the flow of water or, worse, redirect the flow towards the levee.”

G\_FSRG1-12

Transcript, Reclamation Board, June 17, 2005, at 80-81.

“The reason the Board – or staff is recommending denial of this permit is it’s a problem for flood control. It’s one more – out of all the ones we don’t want there to begin with that they have to go through, it is one more fence that has to be addressed during the flood where they have remove it on the water side. These are flood control issues.”

*Id.* at 113. Your prior secretary and current board member, Bill Edgar, has also expressed concerns about the fences and gates:

“And, as Steve pointed out, from our perspective, when we’re maintaining and operating those levees – and I believe this is in Maintenance Area 9 – the staff goes down there. It’s hard to do that when you have to unlock and lock all of these fences. And there are eight of them in that area.

“And when you get into a flood fight, to be able to say – or to have a situation occur where you’re required to ask the city to remove the fence before you start the flood fight, that’s just a lot of time and effort that you shouldn’t have to expend.”

*Id.* at 116.

More recently, the U.S. Army Corps of Engineers has expressed its concerns fences and gates, as reflected in the testimony of Meegan Nagy in January 2011:

“During our recent inspections, we have had significant issues with access, especially along the private property in the Sacramento area. Even along this area, if we have a lock on it, it tends to get cutoff, you get to the gate, you can’t get through it, unless you use the universal lock removers on that, and then people get angry. So we’ve had universal issues across the Board with access.

“If you’ve driven down the levee in the Pocket, you’ve heard about the 14 fences. And it might not sound like a lot, but when you drive through there, it is a huge pain to get through that area. And when we bring people out, we want to show them areas of the levee, I mean, we even have the conversation, do you really want to go through the Pocket. It’s such a pain to drive through there. We usually have to send somebody out in advance, go through open all of the gates in advance of us. It becomes a big problem.

“The fence on the – the portion of the fence on the waterside, I don’t think you’re going to see the Corps approve any of those ever again, unless it’s a very unique situation. That catches debris when the water is high. It just causes a problem.

“And we talk about removable fences, but human nature is they’re not going to remove it. By the time they figure out the water is coming up, they’re trying to do other things. They’re not going to remove the removable pieces of the fences. So I don’t think you’ll ever see us approving a portion of the fence on the waterside.

“And we talked about – I don’t know where every property line is where the State owns the levee versus where it’s a private property owner. But if you think about Mr. Murphy’s argument and allowing every private property owner to do a fence similar to him to protect his dogs and his grandchildren, the amount of fences that you would have, not just in the Pocket but in the system, would be unmanageable.

“And so the precedent that it sets, based on protecting the animals and the grandchildren, everybody can have that argument. And we need to have – we need to think about that as we set standards.

“And also it leads to the next question, if the safety hazard is the grandchildren and you have the fences on either end, the bigger hazard is the water. Is the next question to be have a parallel fence on the waterside as well. We need to think about what could lead from this approval as well.

“The other thing that we’ve noticed on our inspections recently is when we see private property owners put a fence that runs perpendicular to the levee, the levee becomes more of their own. And I think I heard that the property owner is actually below the levee. I’m not sure how that easement works. But just human nature, they start to take the levee as their own property and they just start doing other things on the levee. It’s just human nature. And so that’s the other thing that I think it encourages.”

Transcript, Central Valley Flood Protection Board, January 28, 2011, at 131-33. We have seen time and again that Ms. Nagy’s observation is correct: allowing homeowners to construct fences and gates causes the homeowners to claim rights they do not have under the public trust doctrine.

We understand that the Board has not traditionally required proof of liability insurance for fences and gates, but has required homeowners to agree to indemnify the state for loss. Most homeowners are unlikely to have the wherewithal to reimburse the state for serious damage to levees caused by debris buildup and erosion. Most homeowners’ insurance policies, even if the insurer agrees to cover the loss, will be unable to reimburse the state fully. In the case of a major levee failure caused by a fence, the indemnification will not be worth the paper it’s written on.

Given the history and the indemnity issues, we agree that a regulation permitting perpendicular fences across the levee did not satisfy the Board's duty to provide for flood safety. Therefore, we agree with amendments to your regulations that prohibit future fences. However, FSRG believes that the proposed amendments do not go far enough. We cannot support regulations that permit continuation of the status quo without clear guidance for terminating that status. California and other jurisdictions have long recognized that phasing out non-conforming uses as they are damaged or destroyed is permissible without implicating due process concerns. *See, e.g., Sabek, Inc. v. County of Sonoma*, 190 Cal. App. 3d 163, 167 (1987) ("The object of such a provision is the gradual elimination of the nonconforming use by obsolescence or destruction by fire or the elements, and it has been frequently upheld by the courts." (quoting *Rehfeld v. San Francisco*, 218 Cal. 83, 84 (1933))). At the least, regulations should provide clearly and unmistakably for the removal of waterside fences as they are damaged or destroyed.

While the FSRG proposes clearer standards for removal of fences, we also recommend that the Board ask its staff to consider whether the waterside fences, in particular, are a serious enough hazard that they constitute a nuisance. A long line of federal and state cases holds that an injunction requiring the cessation or removal of public nuisance is not an unconstitutional taking of private property, and does not require compensation to the owner. *See, e.g., Mohilief v. Janovici*, 51 Cal. App. 4th 267 (1996). But even if removal required compensation to the owner, we believe that the value of the fences is negligible, particularly when compared to the risks that they pose. Therefore, we respectfully recommend that the Board ask its staff to consider the means to remove all waterside fences from the Sacramento River levee.

On the related matter of gates, FSRG is concerned that the existing and amended regulations give no attention to the risks created by gates, as your staff and the Army Corps of Engineers have described them. At a minimum, the amendment should not create an impression that gates are presumptively allowed. We urge the Board to approve new gates only on a particularized showing of need balanced against the risks and availability of alternatives. Over the longer term, FSRG respectfully recommends that the Board pursue strategies to remove existing gates, except where necessary to limit unauthorized vehicle access to the levee. We note that the Board's support for the Sacramento River Parkway would further this goal.

### The Benefits of Bicycle Trails

We note here at the outset that the term, "Bicycle Trails," is a misnomer. The multi-use trail on parts of the Sacramento River levee south of Old Sacramento is used by walkers and runners, in addition to bicyclists, just as a variety of users coexist on the American River Parkway. Because mile-markers line the trails, these multi-use trails are particularly useful to train for long-distance races, or for those who simply wish to track their fitness progress. Thus, the multi-use trails encourage health and fitness. Plans by the Delta Protection Commission for the Great California Delta Trail promise the extension of these benefits over longer distances, and to a much greater population.

The multi-use trails encourage alternatives to the automobile for transportation and, therefore, reduce pressure for the construction of new roads, improvement of existing roads, and repair to roads from overuse. The current situation on the Sacramento River Parkway, where walkers and bicyclists must detour from the levee for long distances, discourage the use of the Parkway for transportation. Bicyclists are at increased risk where they must mix with automobile traffic on busy roads that are ill-suited to bicycle traffic.

As written, the Board's regulations do not recognize these and additional benefits of multi-use trails atop levees. However, the encouragement of the multi-use trail is consistent with the proposed Central Valley Flood Protection Plan ("CVFPP"), which encourages the development of multiple uses and benefits for flood control assets. Uses of levees for transportation, public health, and recreation do not increase flooding risks and, in fact, may enhance surveillance and maintenance.

As currently written, the Board's regulations permit bicycle trails, but create the presumption that the trail should be off the levee "where feasible." FSRG respectfully suggests that this is short-sighted, causing planners to choose off-levee routes when an on-levee route creates distinct advantages for levee maintenance crews. Even though a bicycle trail is not constructed to the higher standards for an on-levee maintenance road, the bicycle trail is far preferable to a gravel surface. Driving on a gravel surface can be difficult and risky. Vehicles can more easily damage the levee and create channels for erosion when a gravel surface alone protects the levee structure. Another goal of the proposed CVFPP is to provide additional all-weather access roads to the levees for maintenance crews. Bicycle trails also require all-weather access roads, serving both the goals of transportation/recreation and flood safety.

Furthermore, users of a bicycle trail can greatly extend and expand the ability of maintenance crews to identify potential risks. "Be Flood Safe" signs can train and encourage users to spot and report problems like burrowing animals and erosion. The hearty souls who venture out during and shortly after storms can spot active erosion and boils. When the public is actively discouraged from using levees, the public cannot assist in these efforts.

Yet another goal of the CVFPP is to encourage cost sharing for the improvement of flood management projects. Bicycle trails create a synergism to advance this goal. Federal and state transportation funds, and even private grants and individual donations are available to construct and maintain bicycle trails and all-weather access roads.

FSRG does not recommend that the regulations create a presumption for placing bicycle trails on levee crowns, but rather the elimination of the presumption that bicycle trails should be off levees "where feasible." The Board and its staff can make case-by-case assessments about the advisability of trails on and off the levee. However, creating the presumption that bicycle trails should be off the levee will cause planners to look for alternatives to trails on the levee crown, and deny possible benefits from bicycle trails on levees.

G\_FSRG1-14

COMMENTS ON THE WORKING DRAFT<sup>1</sup>

## § 107

## FSRG PROPOSED REVISION TO PREAMBLE (PAGE 18/75):

The following uses may be permitted in the designated floodway so long as alone or cumulatively, in the judgment of the ~~board~~Board, they will not unduly impede the free flow of water in the floodway or jeopardize public safety, and are otherwise in compliance with all requirements of these regulations:

DISCUSSION: Subsection (b) relating to fences does not capture all restrictions that are contained in section 126 (including the requirements that fences may not “interfere with or preclude legal public access”). See § 126, subsec. (e). The proposed revision makes clear that section 107 does not provide an independent basis for fences or other encroachments.

## § 108

G\_FSRG1-15

## FSRG PROPOSED REVISION TO SUBSECTION (a)(2) (PAGE 19/75):

Nonconforming existing encroachments that do not have a major detrimental impact on an adopted plan of flood control or on project facilities shall be allowed to continue under a permit or order until abandoned or until they are destroyed or damaged, by any cause, to the cumulative extent of more than fifty (50) percent of their market value, their replacement cost, or their physical usefulness ~~during any 10-year period.~~

DISCUSSION: FSRG presumes that the added phrase, “a major detrimental impact on an adopted plan of flood control or on project facilities,” will allow the Board to revoke encroachment permits whenever fences or other obstructions create or demonstrate that they have created an increased risk to the structure and stability of a levee. If the phrase does not effect that presumption, FSRG recommends a revision to ensure that the Board retains authority to act quickly when fences or other obstructions increase flooding risk.

FSRG proposes the addition of “replacement cost” as a better measure of damage for fences that arguably have no “market value” except to the homeowner who has the encroachment permit.

<sup>1</sup> Changes proposed by the Working Draft are underscored or have a single strikethrough line. Changes proposed by FSRG are double-underscored or have a double strikethrough line.



FSRG proposes to strike the reference to “any 10-year period” as ambiguous. Does it mean that a damaged fence must remain in place for 10 years before it must be taken down? FSRG believes, if a non-conforming fence is damaged to the extent described by the regulation, the encroachment permit should be revoked automatically.

G\_FSRG1-16

FSRG PROPOSED REVISION TO SUBSECTION (a)(3) (PAGE 19/75):

Nonconforming existing encroachments that have a major detrimental impact shall on an adopted plan of flood control or on project facilities and which were in existence at the time of adoption of the plan of flood control or new or revised Article 8 standards may, at the discretion of the board~~Board, be removed, abandoned, or suitably modified at no cost to the owner, if they have been in existence prior to the adoption or authorization of a project by the United States or prior to the adoption or authorization of a plan of flood control by the state.~~

DISCUSSION: The word “may” creates ambiguity. The word could be the basis for an owner to resist removal or modification. FSRG also recommends a revision from “board” to “Board” to be consistent with the use of “Board” as a defined term. FSRG does not undertake to highlight other inconsistencies, but we note this inconsistency in the event that it has escaped staff’s attention.

## § 126

G\_FSRG1-17

FSRG PROPOSED REVISION TO RE-LETTERED SUBSECTION (c) (PAGE 54/75):

Gates crossing the levee crown are allowed by the Board upon a particularized showing of need by the applicant, and findings by the Board that a gate does not appreciably increase flood risk or harm other interests, and that other measures to restrict access are not reasonable. Gates~~When allowed, gates~~ within a floodway or on a levee must conform to the following requirements:

DISCUSSION: As discussed more fully above, given the past problems with gates on levees, the Board’s regulations should avoid an inference that gates are presumptively allowed. An applicant should satisfy an evidentiary burden to establish that a gate is necessary, and that a less-restrictive means is not available to serve the need for a gate. Staff and the public should also have the opportunity to provide input on potential risks created by an additional gate, and to comment on possible conflict with other interests, such the City of Sacramento’s long term plans to complete the Sacramento River Parkway.

G\_FSRG1-18

FSRG PROPOSED REVISION TO RE-LETTERED SUBSECTION (e) (PAGE 55/75):

No fence, gate, wall or other barrier may interfere with or preclude legal public access.

DISCUSSION: FSRG believes that the word “gate” should be included to avoid a possible ambiguity that “barrier” would be interpreted to mean only non-movable objects.

§ 132

G\_FSRG1-19

FSRG PROPOSED REVISION TO SUBSECTION (a) (PAGE 69/75):

(a) It is the ~~board's~~**Board's** policy to permit the construction of paved and unpaved bicycle trails by public agencies on levees and within floodways under the ~~board's~~**Board's** jurisdiction, provided that the flood control purpose of the floodway facilities remains primary. Bicycle trails must meet the following general conditions:

~~(1) Where feasible, the bicycle trail must be located off of the levee.~~

DISCUSSION: For reasons discussed more fully above, FSRG believes that the Board should avoid a presumption that bicycle trails are better located off levees. Placing trails on levee crowns helps to satisfy aspirational goals of the CVFPP. The Board can still make a case-by-case analysis of the risks and benefits for an on-levee trail.

G\_FSRG1-20

FSRG PROPOSED REVISION TO SUBSECTION (e) (PAGE 71/75):

~~(e) The permittee must address and incorporate into the trail design where necessary concerns for privacy issues.~~

DISCUSSION: FSRG proposes the deletion of the added provision. As drafted, the provision places the burden for protecting privacy entirely on the public agency proposing the bicycle trail. In the Pocket and Little Pocket, where the Parkway has been the public policy of the city for 37 years, homeowners bear some responsibility to plan for privacy protection. The provision is also vague and ambiguous as drafted. The Board always has the discretion to consider privacy issues, but it is unnecessary to create a presumption that the public agency-permittee bears all responsibility for protecting privacy. Additionally, as drafted, this provision could be used to challenge existing bicycle trail permits where homeowners bought property adjacent to existing portions of the Parkway.

\* \* \* \*

G\_FSRG1-21

FSRG stands ready to address any questions or concerns by the Board or its staff. If you have any such questions or concerns, please address them in the first instance to Jim Houpt, who is the primary author of our comments. You can reach him by phone at 916-396-7239, or by e-mail at [jhaupt@jhauptlaw.com](mailto:jhoupt@jhauptlaw.com).

We sincerely appreciate your consideration of these comments.

Very truly yours,

A handwritten signature in cursive script that reads "Anne Rudin".

Anne Rudin  
Former mayor, City of Sacramento  
And Founding Member, FSRG

Commentor	Commentor Agency	Contact Email	Document	Chapter/ Section	Page No.	Comment	Proposed Modification
James E. Houtp	Friends of the Sacramento River Greenway	<a href="mailto:jhoutp@boardlaw.com">jhoutp@boardlaw.com</a>	December 11, 2011 Public Draft Central Valley Flood Protection Plan ("CVFPP")	1.6.2	P. 1-27	As detailed in the FSRG's letters, the CVFPP should address the flooding risks posed by existing encroachments, obtain the simple fix available to improve flooding safety by removal or mitigation, and undercut objections to improved access by landowners who have usurped property rights that they do not legitimately have.	<b>ADD TEXT (NEW BULLET POINT): Remove or Phaseout Incompatible Encroachments</b> – Identify encroachments that increase flooding risks or exacerbate the difficulty of inspecting levees and fighting floods, and create a program for the removal or mitigation of these encroachments.  <b>ADD UNDERScoreD TEXT:</b> SPFC levee improvements in rural-agricultural areas will focus on maintaining all-weather access roads to facilitate inspection and floodfighting, or encourage local funding and development of paved, public multi-use trails (bicycle trails) until the State can fund and construct fully compliant all-weather access roads.
James E. Houtp	Friends of the Sacramento River Greenway	<a href="mailto:jhoutp@boardlaw.com">jhoutp@boardlaw.com</a>	CVFPP	3.4.1	P. 3-11	As detailed in the FSRG's letters, the State should encourage paved, public multi-purpose trails (bicycle trails) on levee crowns to provide improved access until state funds are available to construct fully compliant all-weather access roads.	<b>ADD UNDERScoreD TEXT:</b> In addition, the SSIA includes a State cost shared program for improving levee crowns to provide all-weather access roads, or interim paved, public multi-use trails (bicycle trails), that allow agencies to quickly respond to flood emergencies.
James E. Houtp	Friends of the Sacramento River Greenway	<a href="mailto:jhoutp@boardlaw.com">jhoutp@boardlaw.com</a>	CVFPP	4.1.1	P. 4-2	As detailed in the FSRG's letters, the State should encourage paved, public multi-purpose trails (bicycle trails) on levee crowns to provide improved access until state funds are available to construct fully compliant all-weather access roads.	<b>ADD UNDERScoreD TEXT (FOURTH BULLET POINT):</b> Improving access for flood emergency response and floodfighting by providing all-weather access roads on levee crowns, with associated ramps and turnouts, or encouraging local funding and development of paved, multi-use trails (bicycle trails), to serve as interim access.
James E. Houtp	Friends of the Sacramento River Greenway	<a href="mailto:jhoutp@boardlaw.com">jhoutp@boardlaw.com</a>	CVFPP	4.1.4	P. 4-10	As detailed in the FSRG's letters, the State should encourage paved, public multi-purpose trails (bicycle trails) on levee crowns to provide improved access until state funds are available to construct fully compliant all-weather access roads.	<b>ADD UNDERScoreD TEXT (FOURTH BULLET POINT):</b> Improving access for flood emergency response and floodfighting by providing all-weather access roads on levee crowns, with associated ramps and turnouts, or encouraging local funding and development of paved, multi-use trails (bicycle trails), to serve as interim access.

## **Friends of the Sacramento River Greenway**

### ***Response***

#### ***G\_FSRG1-01***

The comment requests consideration of FSRG comments submitted previously to the Working Draft of Proposed Technical Amendments to Title 23 of the CCR on February 23, 2012, and FSRG comments submitted on April 20, 2012. DWR and the Board will consider these comments. Responses to comments are provided below to comments expressed in FSRG's April 20, 2012, letter on the CVFPP.

#### ***G\_FSRG1-02***

DWR and the Board understand the flood risks associated with existing encroachments on levees and the role that multiuse public trails could provide in enhancing access and funding alternatives. This comment is the lead-in to numerous more-specific comments that are addressed below. Furthermore, Master Response 7 (particularly Section e, "Recreation") and CVFPP Section 3.14.5, "Open Space and Recreational Opportunities," both discuss the CVFPP in relation to recreational opportunities, which is the focus of the commenter.

The Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to include multiple objectives, where feasible, when proposing improvements to flood management facilities, including opportunities and incentives for expanding or increasing the use of floodway corridors (CWC Section 9616(a)(12)). The potential for recreational use of the flood control system has long been recognized. The SSIA involves floodplain reconnection and floodway expansion, which would improve ecosystem functions, fish passage, and the quantity, quality, and diversity of natural habitats, all of which would contribute to an increase in recreation opportunities and augment the aesthetic values of those areas. Recreation-related spending associated with increased use by visitors can be an important contributor to local and regional economies. During post-adoption activities (regional flood management planning and development of basin-wide feasibility studies), DWR will work with local and regional implementing agencies and partners to refine CVFPP elements, including developing additional details on site-specific recreation features as part of multi-benefit projects.

#### ***G\_FSRG1-03***

DWR and the Board are fully aware of the existing encroachments in the Pocket and Little Pocket neighborhoods of Sacramento. SB 5 objectives specifically address improving flood protection for urban areas and

minimizing the flood management system's O&M requirements. The encroachments identified by the commenter will be addressed in future site-specific projects, as necessary, because levee encroachment issues are site specific. As stated on page 1-14 of the CVFPP, encroachments are identified as a flood risk threat, and the Board "continues to address encroachments on a site-by-site basis." Page 4-10 of the CVFPP lists "Improving access for flood emergency response and floodfighting by providing all-weather access roads on levee crowns, with associated ramps and turnouts," and "Improving visibility and accessibility by removing or modifying encroachments, where necessary" as standards for flood management improvements in rural-agricultural areas as well. During post-adoption activities (regional flood management planning and development of basin-wide feasibility studies), DWR will work with local and regional implementing agencies and partners to refine CVFPP elements, including developing additional details on site-specific recreation features as part of multi-benefit projects. Rather than an oversight in the CVFPP, as the commenter states, levee encroachment issues are generally identified in the CVFPP and will receive greater focus at the project level of development as needed to meet CVFPP goals. DWR, through its Local Flood Emergency Preparedness and Response Program, will be assisting local agencies in preparing effective flood response plans that include access for first responders along levees.

***G\_FSRG1-04***

DWR and the Board appreciate the commenter's statements regarding how cost-sharing opportunities may be available to help establish all-weather access roads on levee crowns. DWR will work with local and regional implementing agencies and partners to refine CVFPP elements, including developing additional details on site-specific recreation features as part of multi-benefit projects.

***G\_FSRG1-05***

This comment amplifies on Comment G\_FSRG1-03. See response to comment G\_FSRG1-03.

***G\_FSRG1-06***

This comment refers to the commenter's February 23, 2012, letter and requests consideration of the comments contained in that letter. Those comments are addressed below in responses to comments G\_FSRG1-07 through G\_FSRG1-21.

***G\_FSRG1-07***

The comment is noted. DWR and the Board have responded to specific comments below.

**G\_FSRG1-08**

The comment is noted. DWR and the Board recognize the goals of FSRG.

**G\_FSRG1-09**

The comment is noted. Responses to comments G\_FSRG1-02 and G\_FSRG1-03 provide additional information to respond to this comment.

**G\_FSRG1-10**

As stated, the commenter did submit comments on the CVFPP and those comments are addressed in responses to comments G\_FSRG1-01 through G\_FSRG1-06.

**G\_FSRG1-11**

The commenter expands on the issues of levee encroachments in the context of the public-trust doctrine. The Board will confer with the State Lands Commission as necessary during project-level evaluations. See also responses to comments G\_FSRG1-02 and G\_FSRG1-03.

**G\_FSRG1-12**

DWR will work with local and regional implementing agencies and partners to refine CVFPP elements, including developing additional details on site-specific project features as part of multi-benefit projects. See also responses to comments G\_FSRG1-02 and G\_FSRG1-03.

**G\_FSRG1-13**

See response to comment G\_FSRG-02.

**G\_FSRG1-14**

This comment is a specific language change to the Working Draft of Proposed Technical Amendments to Title 23 of the CCR, which is not directly relevant to the PEIR or the CVFPP. The comment does not raise specific questions or information regarding the CVFPP or the PEIR. No further response is needed or meaningful.

**G\_FSRG1-15**

See response to comment G\_FSRG14.

**G\_FSRG1-16**

See response to comment G\_FSRG14.

**G\_FSRG1-17**

See response to comment G\_FSRG14.

***G\_FSRG1-18***

See response to comment G\_FSRG14.

***G\_FSRG1-19***

See response to comment G\_FSRG14.

***G\_FSRG1-20***

See response to comment G\_FSRG14.

***G\_FSRG1-21***

The comment is noted. DWR and the Board appreciate FSRG taking the time to submit comments on the CVFPP.

The four specific proposed modifications to the draft CVFPP, as specified in the table at the end of this comment letter, will be considered by DWR and the Board as the CVFPP is finalized.



**Moricz, Nancy**

**G\_GCFB1**

**From:** glenncfb@att.net  
**Sent:** Friday, February 17, 2012 8:36 AM  
**To:** Cvfp\_Comments  
**Subject:** Comments on Central Valley Flood Protection Plan

Glenn County Farm Bureau  
831 5th Street  
Orland, CA 95963-1743

February 17, 2012

Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento, CA 95821

Dear Central Valley Flood Protection Board:

G\_GCFB1-01

I am writing regarding the State of California's Draft Central Valley Flood Protection Plan.

A viable agricultural industry is essential to the State's economy and particularly to the rural areas within the Central Valley. The future of rural communities and the viability of agriculture in the Central Valley is, in turn, dependent upon the State's ability to plan a resilient flood protection system that is compatible with and supportive of Central Valley agriculture.

G\_GCFB1-02

As a Central Valley agricultural stakeholder, I am concerned that, by moving levees and widening bypasses, the Flood Plan proposes to expose to periodic flooding some 40,000 acres of predominantly agricultural lands now located behind the levees. A plan that "expands" and puts more habitat in our existing floodways, without rehabilitating the existing system or ensuring proper maintenance in the future, risks sacrificing thousands of acres of existing agricultural lands, without ensuring we will be any better off in the end.

Some types of agriculture can and do coexist in the state's existing bypasses and overflow basins. In contrast, farming on lands that have been historically protected from flooding is frequently incompatible with flooding. Shifting lands from behind levees into the floodplain would be very disruptive to the farming operations and businesses currently on those lands.

G\_GCFB1-03

Private property rights are also at stake. Lands or interests in lands would have to be acquired from willing sellers—or, where there are no willing sellers, could be acquired by eminent domain. Condemnation of private lands should be a tool of last resort and should be used only where there is a compelling public purpose.

G\_GCFB1-04

The proposed plan would dislocate people, homes, multi-generational family farming operations, and established businesses, representing decades of hard work and investment, without the means to fully compensate such loss, and no clear or adequate transition plan.

G\_GCFB1-05

While representatives from the California Department of Water Resources have suggested that more extensive outreach to local agencies, farmers, and landowners will occur in the "regional planning" and "feasibility study" and "project implementation" phases of the Plan, it is a serious concern for Central Valley agricultural stakeholders that the major features of the Plan have been already selected with little or no attempt on the part of the State to involve affected local interests. As of today, most affected farmers, landowners, and local interests remain wholly uninformed of the State's proposed Plan.

As a Central Valley agricultural stakeholder, I am calling on the State of California to reach out to local governments, rural communities, farmers, and landowners to ensure local issues and concerns are fully understood, taken into account, and addressed.

Thank you for the opportunity to comment.

Sincerely,

Glenn County Farm Bureau

## Glenn County Farm Bureau

### *Response*

#### ***G\_GCFB1-01***

As stated in Master Response 3, the SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises. Implementing the SSIA would increase the percentage of the population receiving at least 100-year (1 percent annual chance) flood protection from the current 21 percent to more than 90 percent (CVFPP, page 3-40). The remaining 10 percent of the population would receive benefits through residual risk management actions. Based on initial planning-level cost estimates developed to evaluate elements of various scenarios considered under the 2012 CVFPP, more than 20 percent of total SSIA investments would support rural-agricultural and small community improvements, and residual risk management. In addition, systemwide elements (which account for almost 40 percent of total SSIA investments) are anticipated to provide flood stage reduction benefits to many of the areas in the system, including small communities and rural-agricultural areas.

In addition, the PEIR prepared for the CVFPP includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) on pages 3.3-34 and 3.3-35 of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed.

#### ***G\_GCFB1-02***

As stated in Master Response 2, the CVFPP is a high-level document that describes the State's vision for a sustainable flood management system in the Central Valley. The SSIA is a responsible and balanced investment approach to achieve this vision. The CVFPP and DPEIR do not permit any specific actions to move forward that would be subject to further evaluation under CEQA. The CVFPP does not provide detailed project descriptions or

funding assurances, nor does it preclude any future actions that could contribute to the State's flood management goals.

The 2012 CVFPP outlines a broad range of potential physical and institutional projects and actions to reduce flood risks. Some actions identified in the SSIA can be implemented within the existing footprint of the SPFC, while others will require new lands and/or easements. Because the SSIA was developed at a conceptual or program level, it does not identify any specific project; therefore, any lands or properties that may be needed to implement the plan are unknown at this time. Initial, preliminary planning-level analyses indicate that actions outlined in the SSIA (expansion of the bypass system; new bypasses; and levee reconstruction, including levee setbacks) could expand flood system lands by as much as 40,000 acres. However, this initial estimate will be refined during follow-on studies and further analysis conducted after adoption of the CVFPP. It is anticipated that land uses within any expansions of the flood management system would be a mix of flood facilities and agricultural and environmental conservation uses; however, the exact amount and geographical distribution of these land uses will require further analyses as future specific projects are considered and evaluated. A portion of the lands and easements needed to implement the SSIA would support improvements to urban levees, but the majority (by surface area) would support floodway expansion and repair and/or reconstruction of levees in rural areas. For preliminary planning purposes, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. However, these preliminary planning estimates will be refined during subsequent project-level analyses. The actual needs for and uses of land will vary depending on the types and locations of specific flood system improvements. For additional details, see Master Response 3.

As stated in Master Response 6, DWR recognizes the importance of proper maintenance to protect State, local, and federal investments in the flood management system. However, maintenance activities alone do not meet current needs or legislative requirements for the CVFPP (e.g., urban level of protection, systemwide approach, and providing multiple benefits).

Improving O&M is a supporting goal of the CVFPP. The SSIA includes elements to address and improve O&M at existing facilities as part of residual risk management. These elements include identifying and repairing after-event erosion, developing and implementing enhanced O&M programs and practices, and forming regional O&M organizations and sustained investments in flood system maintenance (management of the

Sacramento River channel and levees, bank protection, and rehabilitation of flood structures).

The SSIA promotes efficient and sustainable long-term O&M practices through the following:

- Reforming and consolidating State and local agencies' roles and responsibilities for O&M
- Standardizing criteria by which maintenance practices, procedures, and inspections are performed and reported
- Implementing strategies to adequately and reliably fund routine activities and streamline permitting

Some of the proposed activities may involve legislative action, new institutional arrangements involving local maintaining agencies, modifications to existing State programs, and additional or redirected funding.

As stated in Master Response 7, SB 5 sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)).

As stated in Master Response 2, in addition to expansion of the bypass system, levee reconstruction, and other elements, the SSIA includes State investments in agricultural conservation easements, which involves working with willing landowners where easements would be consistent with local land use plans. These easements would be used to preserve agriculture and prevent urban development in current agricultural areas, discouraging conversion to land uses that would increase flood risks within floodplains protected by SPFC facilities. Agricultural conservation easements could be purchased through various DWR programs; an example is DWR's Flood Corridor Program, which focuses on nonstructural flood risk reduction integrated with protection of natural resources and agricultural lands.

In addition, the PEIR prepared for the CVFPP includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) on pages 3.3-34 and 3.3-35 of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in

agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed.

**G\_GCFB1-03**

As stated in Master Response 2, the conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified. The CVFPP states the preference to work with willing landowners for needed land acquisitions. All land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable.

**G\_GCFB1-04**

See response to comment G\_GCFB1-03. Furthermore, as stated in Master Response 2, the CVFPP is a high-level document that describes the State's vision for a sustainable flood management system in the Central Valley. The SSIA is a responsible and balanced investment approach to achieve this vision. The CVFPP and its PEIR do not permit any specific actions to move forward that would be subject to further evaluation under CEQA. The CVFPP does not provide detailed project descriptions or funding assurances, nor does it preclude any future actions that could contribute to the State's flood management goals.

The 2012 CVFPP outlines a broad range of potential physical and institutional projects and actions to reduce flood risks. Some actions identified in the SSIA can be implemented within the existing footprint of the SPFC, while others will require new lands and/or easements. Because the SSIA was developed at a conceptual or program level, it does not identify any specific project; therefore, any lands or properties that may be needed to implement the plan are unknown at this time. Initial, preliminary

planning-level analyses indicate that actions outlined in the SSIA (expansion of the bypass system; new bypasses; and levee reconstruction, including levee setbacks) could expand flood system lands by as much as 40,000 acres. However, this initial estimate will be refined during follow-on studies and further analysis conducted after adoption of the CVFPP. It is anticipated that land uses within any expansions of the flood management system would be a mix of flood facilities and agricultural and environmental conservation uses; however, the exact amount and geographical distribution of these land uses will require further analyses as future specific projects are considered and evaluated.

**G\_GCFB1-05**

As stated in Master Response 13, a multiphase public engagement planning process informed development of the 2012 CVFPP and provided many different venues for communicating and engaging with a broad range of partners and interested parties. This extensive public engagement process for plan development, which began in January 2009, involved about 450 people representing public agencies, businesses, interest-based organizations, and members of the public. The process included nearly 300 meetings and more than 40 publications, in addition to development of a public Web site and webinars. A full list of participants and forms of engagement in plan development are available in Attachment 5, “Engagement Record,” in Appendix A, “Central Valley Flood Protection Plan.” The participants in the engagement process assisted DWR in identifying problems, developing CVFPP goals, identifying the range of management actions to consider in the CVFPP, and reviewing and commenting on the draft content of the CVFPP.

**Engagement Specifics:**

Phase 1 of the public engagement planning process focused on identifying problems and needs and crafting specific goals for the CVFPP. A variety of regional and topic-based work groups formed during this phase. Phase 2 focused on identifying individual actions that could be taken to achieve the CVFPP goals, and engaged stakeholders through continued regional and topic-based work groups and public workshops.

After Phase 2, stakeholders indicated that they preferred to review more developed materials and information before continuing with intense working meetings. With that understanding, DWR focused its efforts on content development (considering previously provided input and ongoing analyses) and developed a cohesive working draft document for stakeholder review in fall 2011. Outreach efforts included e-mail communications and updates, workshops, webinar briefings, and meetings with individuals and agencies. Work group members were also given an

opportunity to review and comment on a working draft of the CVFPP. However, with a commitment to complete a public draft CVFPP within the legislated time frame, the degree of engagement provided in Phases 1 and 2 was not feasible for Phases 3 and 4.

The Board provided various opportunities for members of the public and agencies to comment on the public draft CVFPP, released in December 2011. Hearings were held in 2012 on April 5 (Sacramento), April 6 (Marysville), April 9 (Stockton), and April 11 (Woodland), and public comments were heard and discussed at both regular and special Board meetings. DWR also accepted comments on the DPEIR, which was released in early March 2012. More information on the Board's process for public review and plan adoption can be found on its Web site, <http://www.cvpfb.ca.gov>.

Anticipated activities after adoption of the 2012 CVFPP include regional flood management planning, development of basin-wide feasibility studies, and completion of project-level proposals and environmental compliance. These efforts will engage local entities and stakeholders to help identify projects to meet local and regional needs for flood management, refine the conceptual system elements proposed in the adopted plan, and identify specific projects for construction.

As part of regional flood management planning, regional plans will be prepared with active participation by regional implementing, operating, and maintaining agencies; local land use agencies (counties and cities); agricultural and environmental interests; emergency responders; and tribes. This effort will collect on-the-ground information regarding flood risks and needs, identify local and regional improvement projects, assess the performance and feasibility of these projects, and develop plans that reflect the priorities of local entities in reducing flood risks in each of the nine regions identified in the CVFPP. Each plan will also assess proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. Development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts.

Two basin-wide feasibility studies will be prepared, one in the Sacramento River Basin and one in the San Joaquin River Basin, to refine the major system elements proposed in the 2012 CVFPP (such as bypass expansion and new bypasses) and assess their compatibility with prioritized local projects identified through regional flood management planning. These combinations of system element options and regional elements will form "alternatives" for further evaluation and comparison on a systemwide scale.



Stakeholder engagement will be an important and complex component of the basin-wide feasibility studies. It is anticipated that work groups will form to help evaluate and refine physical options for system elements (e.g., bypass expansion and new bypasses), identify implementation challenges, and provide input into the planning process. The feasibility studies will be conducted in close coordination with USACE (and ongoing federal feasibility studies) and local implementing agencies.

The regional and basin-wide feasibility planning efforts will help identify specific improvement projects for design and environmental review. Stakeholders and the public will have additional opportunities to provide input. The draft feasibility reports and any accompanying environmental documentation will be made available to the public for review and comments.

**Moricz, Nancy**

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**From:** glenncfb@att.net  
**Sent:** Wednesday, April 18, 2012 10:07 AM  
**To:** Cvfp\_Comments  
**Subject:** Comments on the Central Valley Flood Protection Plan

Glenn County Farm Bureau  
831 5th Street  
Orland, CA 95963-1743

April 18, 2012

Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento, CA 95821

Dear Central Valley Flood Protection Board:

G\_GCFB2-01 I am writing regarding the State of California's Draft Central Valley Flood Protection Plan.

A viable agricultural industry is essential to the State's economy and particularly to the rural areas within the Central Valley. The future of rural communities and the viability of agriculture in the Central Valley is, in turn, dependent upon the State's ability to plan a resilient flood protection system that is compatible with and supportive of Central Valley agriculture.

G\_GCFB2-02 As a Central Valley agricultural stakeholder, I am concerned that, by moving levees and widening bypasses, the Flood Plan proposes to expose to periodic flooding some 40,000 acres of predominantly agricultural lands now located behind the levees. A plan that "expands" and puts more habitat in our existing floodways, without rehabilitating the existing system or ensuring proper maintenance in the future, risks sacrificing thousands of acres of existing agricultural lands, without ensuring we will be any better off in the end.

Some types of agriculture can and do coexist in the state's existing bypasses and overflow basins. In contrast, farming on lands that have been historically protected from flooding is frequently incompatible with flooding. Shifting lands from behind levees into the floodplain would be very disruptive to the farming operations and businesses currently on those lands.

G\_GCFB2-03 Private property rights are also at stake. Lands or interests in lands would have to be acquired from willing sellers—or, where there are no willing sellers, could be acquired by eminent domain. Condemnation of private lands should be a tool of last resort and should be used only where there is a compelling public purpose.

G\_GCFB2-04 The proposed plan would dislocate people, homes, multi-generational family farming operations, and established businesses, representing decades of hard work and investment, without the means to fully compensate such loss, and no clear or adequate transition plan.

G\_GCFB2-05 While representatives from the California Department of Water Resources have suggested that more extensive outreach to local agencies, farmers, and landowners will occur in the "regional planning" and "feasibility study" and "project implementation" phases of the Plan, it is a serious concern for Central Valley agricultural stakeholders that the major features of the Plan have been already selected with little or no attempt on the part of the State to involve affected local interests. As of today, most affected farmers, landowners, and local interests remain wholly uninformed of the State's proposed Plan.

As a Central Valley agricultural stakeholder, I am calling on the State of California to reach out to local governments, rural communities, farmers, and landowners to ensure local issues and concerns are fully understood, taken into account, and addressed.

Thank you for the opportunity to comment.

Sincerely,

Glenn County Farm Bureau

## Glenn County Farm Bureau

### *Response*

#### **G\_GCFB2-01**

As stated in Master Response 3, the SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises. Implementing the SSIA would increase the percentage of the population receiving at least 100-year (1 percent annual chance) flood protection from the current 21 percent to more than 90 percent (CVFPP, page 3-40). The remaining 10 percent of the population would receive benefits through residual risk management actions. Based on initial planning-level cost estimates developed to evaluate elements of various scenarios considered under the 2012 CVFPP, more than 20 percent of total SSIA investments would support rural-agricultural and small community improvements, and residual risk management. In addition, systemwide elements (which account for almost 40 percent of total SSIA investments) are anticipated to provide flood stage reduction benefits to many of the areas in the system, including small communities and rural-agricultural areas.

In addition, the PEIR prepared for the CVFPP includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) on pages 3.3-34 and 3.3-35 of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed.

#### **G\_GCFB2-02**

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funding assurances, nor does it preclude any future actions that could contribute to the State's flood management goals.

The 2012 CVFPP outlines a broad range of potential physical and institutional projects and actions to reduce flood risks. Some actions identified in the SSIA can be implemented within the existing footprint of the SPFC, while others will require new lands and/or easements. Because the SSIA was developed at a conceptual or program level, it does not identify any specific project; therefore, any lands or properties that may be needed to implement the plan are unknown at this time. Initial, preliminary planning-level analyses indicate that actions outlined in the SSIA (expansion of the bypass system; new bypasses; and levee reconstruction, including levee setbacks) could expand flood system lands by as much as 40,000 acres. However, this initial estimate will be refined during follow-on studies and further analysis conducted after adoption of the CVFPP. It is anticipated that land uses within any expansions of the flood management system would be a mix of flood facilities and agricultural and environmental conservation uses; however, the exact amount and geographical distribution of these land uses will require further analyses as future specific projects are considered and evaluated. A portion of the lands and easements needed to implement the SSIA would support improvements to urban levees, but the majority (by surface area) would support floodway expansion and repair and/or reconstruction of levees in rural areas. For preliminary planning purposes, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. However, these preliminary planning estimates will be refined during subsequent project-level analyses. The actual needs for and uses of land will vary depending on the types and locations of specific flood system improvements. For additional details, see Master Response 3.

As stated in Master Response 6, DWR recognizes the importance of proper maintenance to protect State, local, and federal investments in the flood management system. However, maintenance activities alone do not meet current needs or legislative requirements for the CVFPP (e.g., urban level of protection, systemwide approach, and providing multiple benefits).

Improving O&M is a supporting goal of the CVFPP. The SSIA includes elements to address and improve O&M at existing facilities as part of residual risk management. These elements include identifying and repairing after-event erosion, developing and implementing enhanced O&M programs and practices, and forming regional O&M organizations and sustained investments in flood system maintenance (management of the

Sacramento River channel and levees, bank protection, and rehabilitation of flood structures).

The SSIA promotes efficient and sustainable long-term O&M practices through the following:

- Reforming and consolidating State and local agencies' roles and responsibilities for O&M
- Standardizing criteria by which maintenance practices, procedures, and inspections are performed and reported
- Implementing strategies to adequately and reliably fund routine activities and streamline permitting

Some of the proposed activities may involve legislative action, new institutional arrangements involving local maintaining agencies, modifications to existing State programs, and additional or redirected funding.

As stated in Master Response 7, SB 5 sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)).

As stated in Master Response 2, in addition to expansion of the bypass system, levee reconstruction, and other elements, the SSIA includes State investments in agricultural conservation easements, which involves working with willing landowners where easements would be consistent with local land use plans. These easements would be used to preserve agriculture and prevent urban development in current agricultural areas, discouraging conversion to land uses that would increase flood risks within floodplains protected by SPFC facilities. Agricultural conservation easements could be purchased through various DWR programs; an example is DWR's Flood Corridor Program, which focuses on nonstructural flood risk reduction integrated with protection of natural resources and agricultural lands.

In addition, the PEIR prepared for the CVFPP includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) on pages 3.3-34 and 3.3-35 of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in

agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed.

**G\_GCFB2-03**

As stated in Master Response 2, the conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified. The CVFPP states the preference to work with willing landowners for needed land acquisitions. All land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable.

**G\_GCFB2-04**

See response to comment G\_GCFB2-03. Furthermore, as stated in Master Response 2, the CVFPP is a high-level document that describes the State's vision for a sustainable flood management system in the Central Valley. The SSIA is a responsible and balanced investment approach to achieve this vision. The CVFPP and its PEIR do not permit any specific actions to move forward that would be subject to further evaluation under CEQA. The CVFPP does not provide detailed project descriptions or funding assurances, nor does it preclude any future actions that could contribute to the State's flood management goals.

The 2012 CVFPP outlines a broad range of potential physical and institutional projects and actions to reduce flood risks. Some actions identified in the SSIA can be implemented within the existing footprint of the SPFC, while others will require new lands and/or easements. Because the SSIA was developed at a conceptual or program level, it does not identify any specific project; therefore, any lands or properties that may be needed to implement the plan are unknown at this time. Initial, preliminary

planning-level analyses indicate that actions outlined in the SSIA (expansion of the bypass system; new bypasses; and levee reconstruction, including levee setbacks) could expand flood system lands by as much as 40,000 acres. However, this initial estimate will be refined during follow-on studies and further analysis conducted after adoption of the CVFPP. It is anticipated that land uses within any expansions of the flood management system would be a mix of flood facilities and agricultural and environmental conservation uses; however, the exact amount and geographical distribution of these land uses will require further analyses as future specific projects are considered and evaluated.

#### ***G\_GCFB2-05***

As stated in Master Response 13, a multiphase public engagement planning process informed development of the 2012 CVFPP and provided many different venues for communicating and engaging with a broad range of partners and interested parties. This extensive public engagement process for plan development, which began in January 2009, involved about 450 people representing public agencies, businesses, interest-based organizations, and members of the public. The process included nearly 300 meetings and more than 40 publications, in addition to development of a public Web site and webinars. A full list of participants and forms of engagement in plan development are available in Attachment 5, “Engagement Record,” in Appendix A, “Central Valley Flood Protection Plan.” The participants in the engagement process assisted DWR in identifying problems, developing CVFPP goals, identifying the range of management actions to consider in the CVFPP, and reviewing and commenting on the draft content of the CVFPP.

#### **Engagement Specifics:**

Phase 1 of the public engagement planning process focused on identifying problems and needs and crafting specific goals for the CVFPP. A variety of regional and topic-based work groups formed during this phase. Phase 2 focused on identifying individual actions that could be taken to achieve the CVFPP goals, and engaged stakeholders through continued regional and topic-based work groups and public workshops.

After Phase 2, stakeholders indicated that they preferred to review more developed materials and information before continuing with intense working meetings. With that understanding, DWR focused its efforts on content development (considering previously provided input and ongoing analyses) and developed a cohesive working draft document for stakeholder review in fall 2011. Outreach efforts included e-mail communications and updates, workshops, webinar briefings, and meetings with individuals and agencies. Work group members were also given an



opportunity to review and comment on a working draft of the CVFPP. However, with a commitment to complete a public draft CVFPP within the legislated time frame, the degree of engagement provided in Phases 1 and 2 was not feasible for Phases 3 and 4.

The Board provided various opportunities for members of the public and agencies to comment on the public draft CVFPP, released in December 2011. Hearings were held in 2012 on April 5 (Sacramento), April 6 (Marysville), April 9 (Stockton), and April 11 (Woodland), and public comments were heard and discussed at both regular and special Board meetings. DWR also accepted comments on the DPEIR, which was released in early March 2012. More information on the Board's process for public review and plan adoption can be found on its Web site, <http://www.cvpfb.ca.gov>.

Anticipated activities after adoption of the 2012 CVFPP include regional flood management planning, development of basin-wide feasibility studies, and completion of project-level proposals and environmental compliance. These efforts will engage local entities and stakeholders to help identify projects to meet local and regional needs for flood management, refine the conceptual system elements proposed in the adopted plan, and identify specific projects for construction.

As part of regional flood management planning, regional plans will be prepared with active participation by regional implementing, operating, and maintaining agencies; local land use agencies (counties and cities); agricultural and environmental interests; emergency responders; and tribes. This effort will collect on-the-ground information regarding flood risks and needs, identify local and regional improvement projects, assess the performance and feasibility of these projects, and develop plans that reflect the priorities of local entities in reducing flood risks in each of the nine regions identified in the CVFPP. Each plan will also assess proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. Development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts.

Two basin-wide feasibility studies will be prepared, one in the Sacramento River Basin and one in the San Joaquin River Basin, to refine the major system elements proposed in the 2012 CVFPP (such as bypass expansion and new bypasses) and assess their compatibility with prioritized local projects identified through regional flood management planning. These combinations of system element options and regional elements will form "alternatives" for further evaluation and comparison on a systemwide scale.

Stakeholder engagement will be an important and complex component of the basin-wide feasibility studies. It is anticipated that work groups will form to help evaluate and refine physical options for system elements (e.g., bypass expansion and new bypasses), identify implementation challenges, and provide input into the planning process. The feasibility studies will be conducted in close coordination with USACE (and ongoing federal feasibility studies) and local implementing agencies.

The regional and basin-wide feasibility planning efforts will help identify specific improvement projects for design and environmental review. Stakeholders and the public will have additional opportunities to provide input. The draft feasibility reports and any accompanying environmental documentation will be made available to the public for review and comments.

# G\_GCFB3

**Moricz, Nancy**

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**From:** g\_overton31@yahoo.com  
**Sent:** Wednesday, February 22, 2012 11:06 AM  
**To:** Cvfpp\_Comments  
**Subject:** Flood Protection Plan Comments

Greg Overton  
President  
Glenn County Farm Bureau  
7081 County Road 31  
Orland, CA 95963-9701

February 22, 2012

Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento, CA 95821

G\_GCFB3-01

Dear Central Valley Flood Protection Board:

I am writing regarding the State of California's Draft Central Valley Flood Protection Plan.

A viable agricultural industry is essential to the State's economy and particularly to the rural areas within the Central Valley. The future of rural communities and the viability of agriculture in the Central Valley is, in turn, dependent upon the State's ability to plan a resilient flood protection system that is compatible with and supportive of Central Valley agriculture.

G\_GCFB3-02

As a Central Valley agricultural stakeholder, I am concerned that, by moving levees and widening bypasses, the Flood Plan proposes to expose to periodic flooding some 40,000 acres of predominantly agricultural lands now located behind the levees. A plan that "expands" and puts more habitat in our existing floodways, without rehabilitating the existing system or ensuring proper maintenance in the future, risks sacrificing thousands of acres of existing agricultural lands, without ensuring we will be any better off in the end.

Some types of agriculture can and do coexist in the state's existing bypasses and overflow basins. In contrast, farming on lands that have been historically protected from flooding is frequently incompatible with flooding. Shifting lands from behind levees into the floodplain would be very disruptive to the farming operations and businesses currently on those lands.

G\_GCFB3-03

Private property rights are also at stake. Lands or interests in lands would have to be acquired from willing sellers—or, where there are no willing sellers, could be acquired by eminent domain. Condemnation of private lands should be a tool of last resort and should be used only where there is a compelling public purpose.

G\_GCFB3-04

The proposed plan would dislocate people, homes, multi-generational family farming operations, and established businesses, representing decades of hard work and investment, without the means to fully compensate such loss, and no clear or adequate transition plan.

G\_GCFB3-05

While representatives from the California Department of Water Resources have suggested that more extensive outreach to local agencies, farmers, and landowners will occur in the "regional planning" and "feasibility study" and "project implementation" phases of the Plan, it is a serious concern for Central Valley agricultural stakeholders that the major features of the Plan have been already selected with little or no attempt on the part of the State to involve affected local interests. As of today, most affected farmers, landowners, and local interests remain wholly uninformed of the State's proposed Plan.

As a Central Valley agricultural stakeholder, I am calling on the State of California to reach out to local governments, rural communities, farmers, and landowners to ensure local issues and concerns are fully understood, taken into account, and addressed.

Thank you for the opportunity to comment.

Sincerely,

Greg Overton  
5305703829  
President  
Glenn County Farm Bureau

**Glenn County Farm Bureau, Greg Overton, President (Letter #3,  
February 22, 2012)**

***Response***

***G\_GCFB3-01***

As stated in Master Response 3, the SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises. Implementing the SSIA would increase the percentage of the population receiving at least 100-year (1 percent annual chance) flood protection from the current 21 percent to more than 90 percent (CVFPP, page 3-40). The remaining 10 percent of the population would receive benefits through residual risk management actions. Based on initial planning-level cost estimates developed to evaluate elements of various scenarios considered under the 2012 CVFPP, more than 20 percent of total SSIA investments would support rural-agricultural and small community improvements, and residual risk management. In addition, systemwide elements (which account for almost 40 percent of total SSIA investments) are anticipated to provide flood stage reduction benefits to many of the areas in the system, including small communities and rural-agricultural areas.

In addition, the PEIR prepared for the CVFPP includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) on pages 3.3-34 and 3.3-35 of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed.

***G\_GCFB3-02***

As stated in Master Response 2, the CVFPP is a high-level document that describes the State's vision for a sustainable flood management system in the Central Valley. The SSIA is a responsible and balanced investment approach to achieve this vision. The CVFPP and DPEIR do not permit any specific actions to move forward that would be subject to further evaluation under CEQA. The CVFPP does not provide detailed project descriptions or

funding assurances, nor does it preclude any future actions that could contribute to the State's flood management goals.

The 2012 CVFPP outlines a broad range of potential physical and institutional projects and actions to reduce flood risks. Some actions identified in the SSIA can be implemented within the existing footprint of the SPFC, while others will require new lands and/or easements. Because the SSIA was developed at a conceptual or program level, it does not identify any specific project; therefore, any lands or properties that may be needed to implement the plan are unknown at this time. Initial, preliminary planning-level analyses indicate that actions outlined in the SSIA (expansion of the bypass system; new bypasses; and levee reconstruction, including levee setbacks) could expand flood system lands by as much as 40,000 acres. However, this initial estimate will be refined during follow-on studies and further analysis conducted after adoption of the CVFPP. It is anticipated that land uses within any expansions of the flood management system would be a mix of flood facilities and agricultural and environmental conservation uses; however, the exact amount and geographical distribution of these land uses will require further analyses as future specific projects are considered and evaluated. A portion of the lands and easements needed to implement the SSIA would support improvements to urban levees, but the majority (by surface area) would support floodway expansion and repair and/or reconstruction of levees in rural areas. For preliminary planning purposes, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. However, these preliminary planning estimates will be refined during subsequent project-level analyses. The actual needs for and uses of land will vary depending on the types and locations of specific flood system improvements. For additional details, see Master Response 3.

As stated in Master Response 6, DWR recognizes the importance of proper maintenance to protect State, local, and federal investments in the flood management system. However, maintenance activities alone do not meet current needs or legislative requirements for the CVFPP (e.g., urban level of protection, systemwide approach, and providing multiple benefits).

Improving O&M is a supporting goal of the CVFPP. The SSIA includes elements to address and improve O&M at existing facilities as part of residual risk management. These elements include identifying and repairing after-event erosion, developing and implementing enhanced O&M programs and practices, and forming regional O&M organizations and sustained investments in flood system maintenance (management of the

Sacramento River channel and levees, bank protection, and rehabilitation of flood structures).

The SSIA promotes efficient and sustainable long-term O&M practices through the following:

- Reforming and consolidating State and local agencies' roles and responsibilities for O&M
- Standardizing criteria by which maintenance practices, procedures, and inspections are performed and reported
- Implementing strategies to adequately and reliably fund routine activities and streamline permitting

Some of the proposed activities may involve legislative action, new institutional arrangements involving local maintaining agencies, modifications to existing State programs, and additional or redirected funding.

As stated in Master Response 7, SB 5 sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)).

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**G\_GCFB3-03**

As stated in Master Response 2, the conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified. The CVFPP states the preference to work with willing landowners for needed land acquisitions. All land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable.

**G\_GCFB3-04**

See response to comment G\_GCFB3-03. Furthermore, as stated in Master Response 2, the CVFPP is a high-level document that describes the State's vision for a sustainable flood management system in the Central Valley. The SSIA is a responsible and balanced investment approach to achieve this vision. The CVFPP and its PEIR do not permit any specific actions to move forward that would be subject to further evaluation under CEQA. The CVFPP does not provide detailed project descriptions or funding assurances, nor does it preclude any future actions that could contribute to the State's flood management goals.

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**G\_GCFB3-05**

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**Engagement Specifics:**

Phase 1 of the public engagement planning process focused on identifying problems and needs and crafting specific goals for the CVFPP. A variety of regional and topic-based work groups formed during this phase. Phase 2 focused on identifying individual actions that could be taken to achieve the CVFPP goals, and engaged stakeholders through continued regional and topic-based work groups and public workshops.

After Phase 2, stakeholders indicated that they preferred to review more developed materials and information before continuing with intense working meetings. With that understanding, DWR focused its efforts on content development (considering previously provided input and ongoing analyses) and developed a cohesive working draft document for stakeholder review in fall 2011. Outreach efforts included e-mail communications and updates, workshops, webinar briefings, and meetings with individuals and agencies. Work group members were also given an

opportunity to review and comment on a working draft of the CVFPP. However, with a commitment to complete a public draft CVFPP within the legislated time frame, the degree of engagement provided in Phases 1 and 2 was not feasible for Phases 3 and 4.

The Board provided various opportunities for members of the public and agencies to comment on the public draft CVFPP, released in December 2011. Hearings were held in 2012 on April 5 (Sacramento), April 6 (Marysville), April 9 (Stockton), and April 11 (Woodland), and public comments were heard and discussed at both regular and special Board meetings. DWR also accepted comments on the DPEIR, which was released in early March 2012. More information on the Board's process for public review and plan adoption can be found on its Web site, <http://www.cvpfb.ca.gov>.

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As part of regional flood management planning, regional plans will be prepared with active participation by regional implementing, operating, and maintaining agencies; local land use agencies (counties and cities); agricultural and environmental interests; emergency responders; and tribes. This effort will collect on-the-ground information regarding flood risks and needs, identify local and regional improvement projects, assess the performance and feasibility of these projects, and develop plans that reflect the priorities of local entities in reducing flood risks in each of the nine regions identified in the CVFPP. Each plan will also assess proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. Development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts.

Two basin-wide feasibility studies will be prepared, one in the Sacramento River Basin and one in the San Joaquin River Basin, to refine the major system elements proposed in the 2012 CVFPP (such as bypass expansion and new bypasses) and assess their compatibility with prioritized local projects identified through regional flood management planning. These combinations of system element options and regional elements will form "alternatives" for further evaluation and comparison on a systemwide scale.

Stakeholder engagement will be an important and complex component of the basin-wide feasibility studies. It is anticipated that work groups will form to help evaluate and refine physical options for system elements (e.g., bypass expansion and new bypasses), identify implementation challenges, and provide input into the planning process. The feasibility studies will be conducted in close coordination with USACE (and ongoing federal feasibility studies) and local implementing agencies.

The regional and basin-wide feasibility planning efforts will help identify specific improvement projects for design and environmental review. Stakeholders and the public will have additional opportunities to provide input. The draft feasibility reports and any accompanying environmental documentation will be made available to the public for review and comments.

Lindahl Farms  
P.O Box 263 Richvale California 95974

**G\_LFARMS1**

April 5, 2012

Central Valley Flood Protection Board  
3310 El Camino Ave  
Room 151  
Sacramento, CA 95821

Re: CVFPP Proposed Plan

Dear Members of the Central Valley Flood Protection Board:

G\_LFARMS1-01

I would like to express a few concerns regarding the State of California's Draft Central Valley Flood Protection Plan ("the Plan") and its potentially detrimental effects on my welfare and that of others living in the southern Butte County region. This plan would subject many farmers upon whom the state relies for food supplies and income taxes to undue hardship and risk, while allocating funds to projects that could be used more effectively in alternative ways.

I recently learned that a plan to create a new bypass, called the Feather River Bypass, has been proposed as part of the Plan. The building of a new bypass and redirecting of the waterways away from recently-built urban areas and into the heart of agricultural land, which serves as not just our home, but as our primary source of income, would take 10,000 acres of productive farmland out of service, while putting the rest (up to 30,000 acres), including the homes of growers and workers at an increased flood risk.

As I understand it, the Feather River Bypass is intended to supplement the existing water transfer structures, specifically the Cherokee Canal, which was originally built for flood control. The current transfer structures have become inadequate due not to lack of facilities, but to deficient maintenance over the years. Perhaps, instead of spending billions of taxpayers' dollars on new structures, the state should consider investing significantly less money on maintenance and restoration of those already in service. A new bypass will also require increased funding for maintenance – over and above the costs to maintain the old canal, which would continue to serve if maintained at its designed capacity.

G\_LFARMS1-02

In addition, as a taxpayer, I would be reluctant to designate the funds I contributed to into any plan that does not account for an increase in flood storage capacity. Increased storage would benefit many Californians during times of drought, at decreased cost to consumers who need the water, rather than allowing run off to be wasted. Instead of building new transfer channels when the current channels could serve our need if properly maintained, the money should be spent on new reservoirs that would help to increase storage and alleviate flood risks at the same time.

G\_LFARMS1-03

State agencies are financed by taxpayer funds and should, therefore, operate in the best interest of those taxpayers. Adoption of the State of California's Draft Central Valley Flood Protection Plan would accomplish the opposite of such a purpose. It would create financial hardship for

**Lindahl Farms**  
**P.O Box 263 Richvale California 95974**

growers who provide irreplaceable services, and would put their lands in peril when more expedient, fiscally sounder, alternatives that would benefit many more of California's residents, are readily available.

Thank you for your time and sincere consideration in this matter.

Sincerely,  
Carl Lindahl

  
Name

## **Lindahl Farms**

### ***Response***

#### ***G\_LFARMS1-01***

As stated in Master Response 1, the CVFPP’s recommended approach—the SSIA—includes proposals for new bypasses and expansions as a potentially cost-effective, systemwide approach to (1) provide flood protection benefits to large areas throughout the SPFC planning area (including rural-agricultural areas, small communities, and urban areas); (2) provide opportunities to improve ecosystem functions and continuity and contribute to mitigation for proposed structural improvements, as well as mitigation for O&M of flood management facilities; and (3) provide flexibility to adapt to future change in climate and improved system resiliency.

In addition, expansion of the Sutter, Yolo, and Sacramento bypasses was identified as an example of increasing the overall capacity of the flood management system to convey and attenuate large flood events. Peak flood stages could be reduced along the Sacramento River, and to a lesser extent, along its tributaries. Lowering flood stages throughout much of the system would benefit rural-agricultural areas, small communities, and urban areas alike. Constructing new bypasses, such as constructing a bypass from the upper Feather River to the Butte Basin and expanding Paradise Cut from the San Joaquin River into the south Delta, would further contribute to reducing peak flood stage along reaches of the Feather River and lower San Joaquin River. See Master Response 1 for additional information.

As stated in Master Response 6, DWR recognizes the importance of proper maintenance to protect State, local, and federal investments in the flood management system. However, maintenance activities alone do not meet current needs or legislative requirements for the CVFPP (e.g., urban level of protection, systemwide approach, and providing multiple benefits). This is highlighted in the evaluation conducted for the preliminary approach called “Achieve SPFC Design Flow Capacity.” For additional details, see Master Response 6.

#### ***G\_LFARMS1-02***

As stated in Master Response 10, DWR considered various forms of storage for flood management in developing the CVFPP and formulating the SSIA, including operational changes to existing reservoirs with flood storage, new or expanded flood storage in reservoirs, and storage in floodplains. Specifically, one of the preliminary approaches—Enhance Flood System Capacity—included enlarging the flood storage allocation of

several multipurpose reservoirs to improve management of flood risks on lands protected by the SPFC.

The analyses of reservoir storage and flood operations that were conducted in support of the 2012 CVFPP are described in Attachment 8B in Appendix A, “Central Valley Flood Protection Plan.”

Storage elements ultimately retained in the SSIA are based on preliminary systemwide analyses conducted for the 2012 CVFPP, legislative direction for the CVFPP, and the findings of prior and ongoing studies. Among those studies are ongoing surface storage investigations and prior local, State, and federal studies such as the Shasta Lake Water Resources Investigation, North-of-the-Delta Offstream Storage (Sites Reservoir), In-Delta Storage Program, Los Vaqueros Reservoir Expansion, and Upper San Joaquin River Basin Storage Investigation (Temperance Flat Reservoir). However, no new site-specific investigations of surface storage were included in the systemwide analyses conducted to support the 2012 CVFPP.

DWR recognizes the importance of developing additional water storage capacity in California to support an increasing population, to help compensate for the anticipated loss of snowpack storage as a result of climate change, and to maintain the important role of Central Valley agriculture for the nation and the world. For these reasons, multipurpose reservoir projects will likely continue to be proposed and, if successful, may help to meet needs for flood storage capacity.

### ***G\_LFARMS1-03***

In accordance with legislative direction and reflecting stakeholder input, DWR prepared the 2012 CVFPP to describe the State’s vision for flood management in the Central Valley. This vision for flood management in the Central Valley is for a sustainable flood management system that provides a high degree of public safety, promotes long-term economic stability, and supports restoration of compatible riverine and floodplain ecosystems.

The SSIA helps achieve the State’s vision for flood management in a balanced manner by promoting responsible investment of public funds, commensurate with flood risks, in projects that integrate multiple benefits, in proactive maintenance of SFPC facilities and residual risk management, and in wise management of floodplains protected by the SPFC. This vision is described in greater detail in Master Response 8.

As stated in Master Response 9, the SSIA was formulated by assembling the most promising, affordable, and timely elements of the three preliminary approaches to best meet legislative requirements and identified CVFPP goals. The SSIA reflects a balanced and fiscally responsible

approach, which will be developed further as DWR completes more detailed studies and designs for site-specific capital improvements and develops other, systemwide flood improvement projects. The Central Valley Flood Protection Act of 2008 (SB 5) requires a systemwide approach for developing the CVFPP (CWC Section 9603) and requires inclusion of multiple benefits, where feasible (CWC Section 9616). Not all potential SSIA benefits have been detailed or quantified (e.g., avoided damage to infrastructure and/or life loss, ecosystem restoration), and the planning-level cost estimates remain preliminary; therefore, it is inappropriate to analyze the benefit-cost ratio using information contained in the high-level 2012 CVFPP. During post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, and development of a financing plan for the CVFPP), DWR will refine the physical elements of the CVFPP and confirm their feasibility, including the costs and benefits of site-specific improvements.





**2012 Central Valley Flood Protection Plan  
Final Program Environmental Impact Report**

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**MBK Engineers, Derek Larsen**

***Response***

***G\_MBK1-01***

The changes noted in this comment do not alter the conclusions presented in the EIR. The comment is noted.

April 4, 2012



**G\_MT1**

Mr. Bill Edgar, Chair, CVFPP  
c/o Mary Ann Hadden  
DWR, Division of Flood Management  
c/o MWH  
3321 Power Inn Road, Suite 300  
Sacramento, CA 95826

Dear Mr. Edgar:

G\_MT1-01

This is being written to request correction of an omission in the CVFPP. In 1964 the State Reclamation Board ordered levees to be degraded in Butte County so Sacramento River flood waters could flow into the Butte Basin thus relieving pressure on the "project levees" from R.M. 172 south. The Reclamation Board ordered M&T Ranch to lower its levee so 60,000 cfs of flood water would flow into the Butte Basin. Since 1964 the State DWR and USACE have spent a great deal of money maintaining and rocking the M&T Weir site and the levees in the area that insure the flood water "flow splits" into the Butte Basin. A serious bank erosion problem has been developing at R.M. 192.4 (Phelan Levee) on the east bank of the Sacramento River. If the Phelan Levee is compromised additional and uncontrolled flood waters will enter the Butte Basin.

The State DWR insists the Phelan Levee is a private levee and has assumed no responsibility for it.

The California Water Code 8361 (p) instructs DWR to maintain structures including flood relief structures and weirs in our area of the M&T Weir Structure (all the way to R.M. 193 where Big Chico Creek meets the Sacramento River). In 1989 Army Corps of Engineers design memoranda states the Phelan Levee is a component of the flood control system which maintain the proper flow split between the Sacramento River Flood Control Project levees and the overflow areas east of the river.

In Phase 1 of the CVFPP meeting, Jeremy Arrich, Chief of the CVFPP, wrote a letter on September 1, 2010 (attached) to Mike Crump, Butte County's Director of Public Works. In this letter Mr. Arrich indicated his plan to advance the issue of extending the project limits north to Chico Landing (R.M. 193) through the development of the CVFPP

In reviewing the E.I.R. for the CVFPP there is no mention of protecting the facilities that maintain the flow splits into the Butte Basin. In the 2012 CVFPP E.I.R. pages 3. 13-12, the Sacramento River Bank Protection Project is detailed as being from Chico Landing to the Goose Lake Flood Relief Structure. The Phelan Levee on the east bank and between Chico Landing and the M&T FRS is not listed as being a component of the CVFPP. It needs to be specifically listed as a component of the CVFPP.

Taking responsibility and protecting these facilities that deliver the design flood flows to the Butte Basin would affirm and protect transportation, commerce and flood safety in Butte County and protect central valley agriculture, retain agricultural uses long-term, maintain a rural levee standard and avoid redirected impacts and unintended consequences.



FARM DOLLARS AT WORK

Mr. Bill Edgar, Chair, CVFPP  
DWR, Division of Flood Management  
Page 2

Please include the permanent facilities between the M&T FRS and Chico Landing as critical infrastructure and a component of the Central Valley Flood Protection Plan.

Sincerely,

A handwritten signature in black ink, appearing to read 'Les Heringer', written over a large, empty oval shape.

Les Heringer  
Manager

Enclosures

CC: Steve Lambert, Chair, Butte County Board of Supervisors  
Mike Crump, Director, Butte County Public Works Department  
Stuart Edell, Butte County Public Works Department

**DEPARTMENT OF WATER RESOURCES**

CENTRAL VALLEY FLOOD PLANNING OFFICE  
3464 EL CAMINO AVENUE, SUITE 150  
SACRAMENTO, CA 95821  
FAX (916) 574-1053



SEP 01 2010

Mr. Mike Crump, P.E.  
Butte County Director of Public Works  
7 County Center Drive  
Oroville, California 95965-3397

Dear Mr. Crump:

I am writing to thank you and Mr. Stuart Edell for your interest, input and participation in the Central Valley Flood Protection Plan (CVFPP) development process over the past year, and look forward to continued engagement by yourselves and other Butte County representatives as we move forward. We appreciated your January 8, 2010 letter on Butte Basin overflow at the 3B's location, and Mr. Edell's February 25 and May 20, 2010 letters providing comments on the draft State Plan of Flood Control (SPFC) Descriptive Document and the draft Regional Conditions Report, respectively.

We are in the process of revising the SPFC Descriptive Document to address comments received for the January 2010 draft, including yours related to the criteria and characterization of SPFC as defined in Public Resources Code Section 5096.805. We anticipate the report to be released in fall 2010, and we hope that you would be able to review the document to confirm that your concerns have been properly addressed. In addition, as we have discussed in the Regional Conditions Work Group meetings, the Regional Conditions Report is a working document and its content and suggested revisions will be incorporated in future work products where appropriate.

The State recognizes the importance of the Butte Basin Overflow Area (BBOA) to the functioning of the Sacramento River Flood Control Project, and we would like to have further discussion with you on your specific comments and concerns. Our Central Valley Flood Planning Team staff will be contacting you and Mr. Edell to schedule a meeting in the near future. In the meantime, we would like to respond to some of your major concerns related to the BBOA.

We agree with you and Mr. Edell that the BBOA is important and necessary for the protection of the Sacramento River Flood Control Project downstream. As referenced in your letters, in December 1986 The Reclamation Board (now, the Central Valley Flood Protection Board) certified the Environmental Impact Report (EIR) for the Plan of Flood Control for the Butte Basin Overflow Area (1986 Plan), and concurrently

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SEP 03 2010

COUNTY OF BUTTE  
AND DEVELOPMENT DIV.

Mr. Mike Crump, P.E.  
September 1, 2010  
Page 2

approved a State construction project to define and establish the M&T and Goose Lake Flood Relief Structures. Subsequently, the State implemented the "Overbank Flow Element" of the 1986 Plan. The U.S. Army Corps of Engineers (Corps) implemented many features of the "Channel Stabilization Element" of the Plan by constructing several bank protection sites during the late 1980's. Since 1987, the State has been responsible for maintenance of the State-constructed overbank flow features and the Corps-constructed channel stabilization features of the 1986 Plan.

We recognize that since the mid-1990's, the Corps has not considered the BBOA to be part of the Sacramento River Flood Control Project, leading to a recommendation in the 1997 report by the Governor's Flood Emergency Action Team (FEAT), which urged the Corps to:

"formally recognize the importance of the Butte Basin Overflow Area by adopting the overflow and bank protection features into the Sacramento River Flood Control Project, extending the project limits north to Chico Landing to match the limits of the Sacramento River Bank Protection Project, and approving a plan of flood control for the Butte Basin Overflow Area reach of the river".

We plan to advance the issue through the ongoing development of the CVFPP. Consistent with Water Code Section 9611, there would be opportunities (based on the outcome of plan development) for recommending addition of facilities to or removal of facilities from the SPFC. Your input and additional insights are welcome and beneficial in the evaluation. I look forward to more in-depth discussion with you on these issues.

Another topic discussed extensively in all three letters from Butte County is the 3B's Overflow Area. There have been many meetings among representatives of the State, Corps, local government entities, and private landowners over the past several years to facilitate local resolution of this issue. The December 1986 EIR for the BBOA prepared for The Reclamation Board references 3B's as one of three "definitive areas for flood water diversion". However, no construction work was necessary at 3B's in order to

Mr. Mike Crump, P.E.  
September 1, 2010  
Page 3

meet the State's objectives to implement the Plan of Flood Control because a natural overflow had been created there due to the breach of the private "Wright Levee" during previous high water years.

While the 1986 Plan found no State interest in construction at the 3B's site, local concerns were addressed by providing specific "not to exceed" elevations and dimensions on page B-11 of the 1986 EIR that private landowners might use to petition the Board for their construction of a private levee along the river to prevent nuisance overbank flooding at the lower river flows which are not threatening to the Sacramento River Flood Control Project. In addition, as part of the ongoing planning process, we will look into associated facilities to be added or removed from the SPFC as legislatively mandated. We will assess facilities for addition or removal in your area, as well as throughout the system, as part of Phase 3 and 4 of the CVFPP development process.

In conclusion, we recognize the challenges in reaching a common understanding of the BBOA, including internal distribution of flows during various flow levels and its operation and proper functioning with respect to the overall flood protection system. The information provided in Butte County's letters and subsequent discussions will be carefully considered in our upcoming evaluations of the CVFPP and used to help formulate potential management actions and solutions to identified problems. We look forward to working further with you and your staff on this important planning process.

As mentioned earlier, we will be contacting you to arrange a meeting of our staffs to go over your detailed comments. If you have any questions, please contact Ms. Michele Ng of this office at (916) 716-1913.

Sincerely,

ORIGINAL SIGNED BY

Jeremy Arrich, Chief  
Central Valley Flood Planning Office  
Division of Flood Management



Mr. Mike Crump, P.E.  
September 1, 2010  
Page 4

cc: Ms. Jane Dolan  
196 Memorial Way  
Chico, California 95926

Ms. Kim Yamaguchi  
747 Elliott Road  
Paradise, California 95969

Mr. Steve Lambert  
3159 Nelson Avenue  
Oroville, California 95965

Mr. Bill Connelly  
5280 Lower Wyandotte Road  
Oroville, California 95966

Ms. Maureen Kirk  
Post Office Box 1087  
Chico, California 95927

✓ Mr. Stuart Edell  
7 County Center Drive  
Oroville, California 95965-3397

Mr. Merritt Rice  
DWR  
Central Valley Flood Planning Office  
3464 El Camino Avenue, Suite 150  
Sacramento, California 95821

Mr. Dan McManus  
DWR  
Special Investigations Branch  
2440 Main Street  
Red Bluff, California 96080

Mr. Roger Putty  
MWH  
Upper Sacramento Work Group  
3321 Power Inn Road, Suite 300  
Sacramento, California 95826

Mr. Mike Crump, P.E.  
September 1, 2010  
Page 5

Mr. Scott Rice  
2870 Gateway Oaks Drive, Suite 300  
Sacramento, California 95833

Mrs. Michele Ng  
DWR  
Central Valley Flood Planning Office  
3464 El Camino Avenue, Suite 150  
Sacramento, California 95821

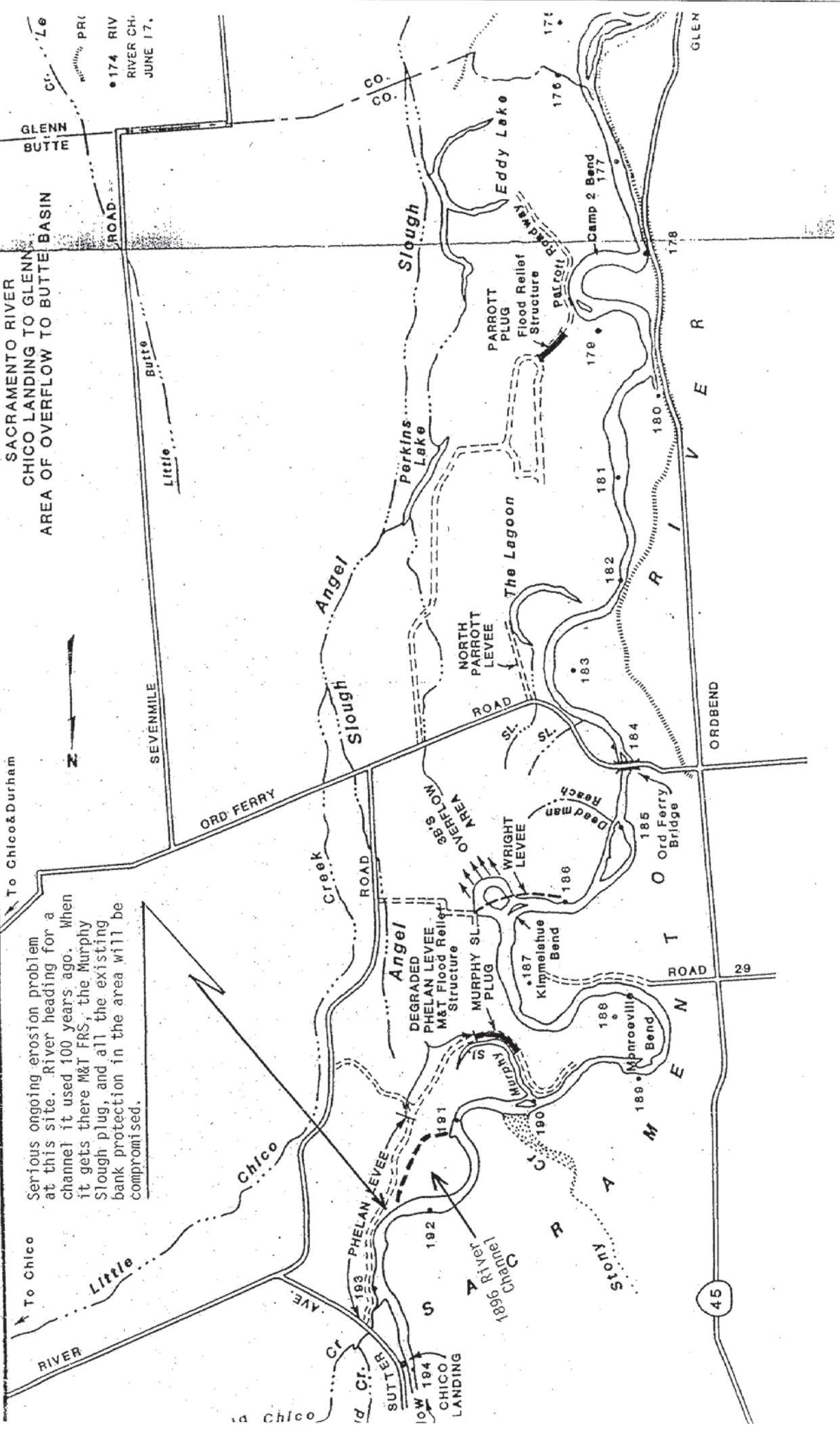
Mr. Les Heringer  
M&T Ranch  
3964 River Road  
Chico, California 95928

Mr. Jason Larrabee  
Post Office Box 172  
Butte City, California 95920

SACRAMENTO RIVER  
 CHICO LANDING TO GLENN BUTTE  
 AREA OF OVERFLOW TO BUTTE BASIN

To Chico & Durham

Serious ongoing erosion problem at this site. River heading for a channel it used 100 years ago. When it gets there M&T FRS, the Murphy Slough plug, and all the existing bank protection in the area will be compromised.



To Chico

Little Butte

SEVENMILE

ORD FERRY ROAD

ORD BEND ROAD

Little Butte

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## M & T Chico Ranch

### *Response*

#### **G\_M&T1-01**

The SPFC includes two flood relief structures and one natural overflow area (i.e., M&T Flood Relief Structure, Three B's Natural Overflow Area, and Goose Lake Flood Relief Structure), designed to maintain flow splits into the Butte Basin Overflow area. The flood pressure relief provided by these weirs is essential to operations during high flows. In 1964, M&T, Chico Ranch, Parrot, and Diamontine ranches had built levees to direct floodwaters on their properties. The Board ordered them degraded to specific elevations to maintain floodflows. The Phelan levee was one of the levees that was ordered to be degraded upstream of the M&T plug.

The Butte Basin Overflow Area is a historic overflow area where floodwaters from the Sacramento River periodically spill into the Butte Basin. The importance of this river reach to the functioning of the SRFCP was recognized through the Board's 1986 certification of the EIR for the *Plan of Flood Control for the Butte Basin Overflow Area* (known as the "1986 Butte Basin Plan"), and its concurrent approval of a State construction project to implement the "Overbank Flow Element" of the 1986 Butte Basin Plan. DWR's 1988 construction defined and established the M&T and Goose Lake Flood Relief Structures to provide overflow into the Butte Basin (along with flow from the Three B's Natural Overflow Area) when the Ord Ferry gauge exceeds 114 feet NGVD. DWR also raised the Murphy Slough Plug (a segment of the private Phelan Levee immediately downstream from the M&T Flood Relief Structure) by 2 feet. This fortification reduced the risk of a neck cutoff of the Sacramento River at Monroeville Bend during high water, which would compromise the hydraulic efficiency of the M&T Flood Relief Structure. However, the Phelan levee is not part of the SPFC because of the lack of an assurance agreement with the State. For more information on adding facilities to the SPFC, see Chapter 7.0 of the *State Plan of Flood Control Descriptive Document* (November 2010).

As stated in Master Response 13, DWR provided many different venues for communicating and engaging with a broad range of partners and interested parties about the 2012 CVFPP. This extensive public engagement process for plan development, which began in January 2009, involved about 450 people representing public agencies, businesses, interest-based organizations, and members of the public. The process included nearly 300 meetings and more than 40 publications, in addition to development of a public Web site and webinars. A full list of participants and forms of engagement in plan development are available in Attachment 5,

“Engagement Record,” in Appendix A, “Central Valley Flood Protection Plan.” The participants in the engagement process assisted DWR in identifying problems, developing CVFPP goals, identifying the range of management actions to consider in the CVFPP, and reviewing and commenting on the draft content of the CVFPP.

Phase 1 of the public engagement planning process focused on identifying problems and needs and crafting specific goals for the CVFPP. A variety of regional and topic-based work groups formed during this phase. Phase 2 focused on identifying individual actions that could be taken to achieve the CVFPP goals, and engaged stakeholders through continued regional and topic-based work groups and public workshops.

After Phase 2, stakeholders indicated that they preferred to review more developed materials and information before continuing with intense working meetings. With that understanding, DWR focused its efforts on content development (considering previously provided input and ongoing analyses) and developed a cohesive working draft document for stakeholder review in fall 2011. Outreach efforts included e-mail communications and updates, workshops, webinar briefings, and meetings with individuals and agencies. Work group members were also given an opportunity to review and comment on a working draft of the CVFPP. However, with a commitment to complete a public draft CVFPP within the legislated time frame, the degree of engagement provided in Phases 1 and 2 was not feasible for Phases 3 and 4.

As stated in Master Response 14, regional flood management planning, to be conducted in each of nine regions identified in the 2012 CVFPP, is an important next step in identifying specific improvements to rural-agricultural areas, small communities, and urban areas consistent with the SSIA. Upon CVFPP adoption, DWR will work closely with local entities to collect on-the-ground information regarding flood risks and needs, identify potential local and regional improvement projects, assess the performance and feasibility of these projects, and develop proposals that reflect the priorities of local entities in reducing flood risks. Each regional plan will present an assessment of proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. DWR intends to provide guidance as well as technical and financial assistance to local agencies to prepare the regional flood management plans, subject to availability of funds.

Post-adoption activities will include development of two State-led basin-wide feasibility studies—one in the Sacramento River Basin and one in the San Joaquin River Basin—that will refine the broad description of the SSIA contained in the 2012 CVFPP. The basin-wide feasibility studies will

(1) identify State interest in and articulate refinements to system elements and regional elements, (2) inform development of the CVFPP Financing Plan and the 2017 CVFPP update, and (3) help define the State's locally preferred plan for consideration in ongoing and planned USACE federal feasibility studies. The basin-wide feasibility studies will focus on system elements, which may take longer to study and implement than other regional plan elements because of their scale and complexity.

As stated in CVFPP Section 3.4.3, "Local Non-State Plan of Flood Control Levees," during future feasibility studies, the State will evaluate projects to maintain the function of local levees (not part of the SPFC) if they contribute to the effective operations and maintenance of the SPFC. The State may be able to participate through existing programs on feasible projects.



**Conservation Community Letter**  
to the  
**Central Valley Flood Protection Board**  
regarding the  
**Central Valley Flood Protection Plan**



**American Rivers ♦ California Trout ♦ Defenders of Wildlife**  
**Environmental Defense Fund ♦ Friends of the River ♦ National Wildlife Federation**  
**Natural Resources Defense Council ♦ Planning and Conservation League**  
**PRBO Conservation Science ♦ River Partners ♦ Sacramento River Preservation Trust**  
**Sierra Club California ♦ The Bay Institute ♦ The Nature Conservancy ♦ Trout Unlimited**  
**Tuolumne River Trust**

April 20, 2012

William Edgar  
President  
Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento, CA 95821

Dear President Edgar:

G\_MULTIPLE1-01

Thank you for the opportunity to comment on the Central Valley Flood Protection Plan (CVFPP). The draft plan is a major step toward improving the way the State of California manages the rivers of the Central Valley and the great floods that the region periodically experiences—events that climate science indicates will occur more frequently in the future. Significant effort was made to find a way to reduce the risk of flooding while supporting other public benefits including floodplain management, protection of agricultural lands, and improved water quality and supply, as well as providing for healthy ecosystems that support wildlife. The draft plan is commendable for its initial effort to address these critically important and interrelated issues. However, the draft must be improved in certain respects to ensure the plan reduces flood risk while supporting healthy river ecosystems as required by the Central Valley Flood Protection Act of 2008 (CVFPA).

Our organizations recognize and support the primary purpose of this plan: to improve public safety. The best options for protecting public safety are also the best options for restoring river functions. Healthy rivers are highly valued by the people of California because they provide a variety of economic benefits to Californians, including clean water supply, recreation, fisheries, wildlife, and flood attenuation. The CVFPA was crafted recognizing that win-win solutions increasing both public safety and ecosystem health are essential to achieve the level of public support necessary to implement the plan. For that reason, the act mandates a plan that simultaneously increases public safety and ecosystem health as the best strategy for reducing flood risk.

The undersigned organizations believe that the best way to protect Central Valley communities from flooding is to expand floodways to safely accommodate flood flows. More room for our rivers and floodways also creates more opportunities for habitat restoration, parks, recreation, and the jobs these



generate. In addition, expanding floodways will create more flexibility for managing upstream reservoirs to improve water supply reliability.

G\_MULTIPLE1-02 The plan correctly determines that expanding capacity of rivers and the bypass system is a key opportunity to both reduce flood risk and restore floodplain habitats, but the plan appears to delay these essential improvements into the distant future. Similarly, while we appreciate that the plan references the importance of integrated flood management to ensure that flood system improvements advance multiple objectives as required by the authorizing legislation, we are troubled by the lack of specificity regarding how DWR will actually advance multiple-objective projects on the ground. For example, although the plan includes \$10 billion in line-item improvements for levee construction and enlarging storage in Folsom reservoir, it provides relatively little information about how, where, or when it will fund multiple-objective projects.

G\_MULTIPLE1-03 The plan is also missing a number of key elements that are either required by law or essential for success. It lacks specific measurable objectives for flood risk reduction, ecosystem function, and other supporting goals. The plan goals are less specific than the objectives enumerated in the authorizing legislation, leading us to question whether the plan will sufficiently advance the objectives outlined by the legislature. The plan also lacks a financing plan required by the authorizing legislation and a conservation strategy, which will be necessary to cost-effectively expedite permits and implementation.

G\_MULTIPLE1-04 After review of the plan and the underlying technical documents, we do not believe that the plan has incorporated within its range of alternatives any approaches sufficient to achieve the objectives of the authorizing legislation. For example, the plan appears to have largely dismissed levee-setbacks without first evaluating how levee-setbacks in combination with flood bypasses could reduce flood risk and meet the other objectives of the legislation. Instead, the plan emphasizes traditional levee improvements that are costly to maintain, harmful to river ecosystems, and vulnerable to catastrophic failure, with potentially serious consequences for our communities.

G\_MULTIPLE1-05 If the Board moves forward to adopt the plan according to the schedule provided by the legislature, we respectfully request that you make clear findings about the deficiencies of the plan and provide binding recommendations as well as a schedule for revising the plan. We agree that the State Systemwide Investment Approach (SSIA) provides a framework for conducting the next phases of planning, and we respectfully request that the Board work diligently in the near future to improve the plan in the following ways:

- G\_MULTIPLE1-06 • **Develop a vision statement.** Briefly explain to voters and other decision makers how investment in the Central Valley Flood Management Plan will reduce flood risk, provide sustainable benefits, and make our communities more resilient to floods that may not be possible to control.
- G\_MULTIPLE1-07 • **Commission a scientific peer review of the plan and underlying technical analysis.** The plan will cost billions of dollars. DWR staff has correctly acknowledged that the technical analysis and modeling conducted to inform the plan have not been reviewed by independent experts. Independent peer review will give taxpayers and decision makers more confidence that the plan

is based on the best available science. The peer review should focus on how planning and analytical approaches can be refined to improve the quality of future analysis and planning.

G\_MULTIPLE1-08

- **Develop specific, measurable objectives and performance criteria.** The plan should include Specific, Measurable, Achievable, Relevant and Timed (SMART) objectives related to flood risk reduction, ecosystem restoration, and the other plan goals before DWR invests in additional system or regional planning efforts. The ecosystem objectives should “promote the recovery and stability of native species populations and overall biotic community diversity” as directed by the legislature. While the plan will ultimately need to include objectives, we recommend that the Board integrate the Central Valley Project Improvement Act (CVPIA) goal of doubling native anadromous fish populations, the Department of Fish and Game Ecosystem Restoration Program’s Conservation Strategy for Restoration of the Sacramento-San Joaquin Delta Ecological Management Zone and the Sacramento-San Joaquin Valley Regions, and the Central Valley Joint Venture (CVJV) objectives for wetland bird habitat, riparian bird habitat, and wildlife compatible agriculture as required by law.

G\_MULTIPLE1-09

G\_MULTIPLE1-10

- **Prioritize early, multi-benefit demonstration projects.** The plan should include a mechanism to implement model projects in the next five years in each of the nine planning regions. These projects should be informative, support existing efforts and demonstrate how to collaboratively design, fund, and implement integrated, multiple objective projects.

G\_MULTIPLE1-11

- **Expedite completion of a conservation strategy.** Due to the complex and significant cumulative impacts of the Central Valley flood control and water management system, it will be challenging to demonstrate that the plan will meet regulatory requirements for protecting endangered species. A clear and actionable conservation strategy is essential for facilitating permits, expediting implementation, and reducing costs.

G\_MULTIPLE1-12

- **Expedite completion of a financing strategy.** Preparation of a financing plan is required by the legislation and essential to designing and prioritizing plan investments.

G\_MULTIPLE1-13

- **Better Incorporate Climate Change.** The plan and underlying analysis do not account for changes in hydrology and hydraulics that will result from climate change, change that must be considered under state policy. To enable the development of a durable CVFPP, the Board should require basin and regional plans to evaluate the effects of climate change and refine the SSIA accordingly.

G\_MULTIPLE1-14

- **Optimize the SSIA and reconsider the potential role of levee setbacks.** Conduct additional analyses to model levee setbacks and optimize the SSIA against measurable objectives within the parameters of the financing plan.

G\_MULTIPLE1-15

- **Provide specific guidance to enable local planning.** Providing guidance to local jurisdictions to limit unsafe development of floodplains was a major impetus of the authorizing legislation, but the draft does not provide any information regarding where local jurisdictions should avoid or condition new development. This step is essential both for keeping people out of harm’s way and for preserving options to improve the flood system.

We understand that you are under time pressure to adopt the plan on the schedule provided by the legislature. Nonetheless we urge you to take time in coming weeks and months to understand and improve this seminal plan to ensure that it both delivers better flood protection and restores river ecosystems for future generations. Although the draft plan is a major step forward, it suffers from significant flaws that must be addressed in order to best serve all the people of California who will pay for plan implementation and depend on the plan to protect their personal safety, economic security, and quality of life.

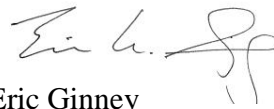
As you move forward with your deliberations, we ask that you consider this and previous letters our organizations have submitted to the Board, including the more detailed analysis of the plan submitted by American Rivers. We are committed to working with you and the Board over the long run to ensure that the plan results in safe communities and healthy rivers. Thank you for considering our comments.



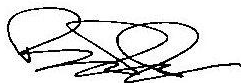
John Cain  
American Rivers



Curtis Knight  
California Trout



Eric Ginney  
Sacramento River Preservation Trust



Brian J. Johnson  
Trout Unlimited



John Carlon  
River Partners



Steve Malloch  
National Wildlife Federation



Susan Tatayon  
The Nature Conservancy



Monty Schmitt  
Natural Resources Defense Council



Jim Metropulos  
Sierra Club California



Kim Delfino  
Defenders of Wildlife



Jonas Minton  
Planning and Conservation League



Ron Stork  
Friends of the River



Patrick Koepele  
Tuolumne River Trust



Ann Hayden  
Environmental Defense Fund



Ellie Cohen  
PRBO Conservation Science



Gary Bobker  
The Bay Institute

**Multiple Commenters—Conservation Community Letter  
(American Rivers, California Trout, Defenders of Wildlife,  
Environmental Defense Fund, Friends of the River, National  
Wildlife Federation, Natural Resources Defense Council,  
Planning and Conservation League, PRBO Conservation  
Science, River Partners, Sacramento River Preservation Trust,  
Sierra Club California, The Bay Institute, The Nature  
Conservancy, Trout Unlimited, and Tuolumne River Trust)**

***Response***

***G\_MULTIPLE1-01***

As stated in Master Response 7, the SSIA includes the supporting goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time.

***G\_MULTIPLE1-02***

As stated in Master Response 7, Appendix E, “2012 Central Valley Flood Protection Plan Conservation Framework,” provides a preview of a long-term Conservation Strategy that DWR is developing to support the 2017 CVFPP Update. The Conservation Framework focuses on promoting ecosystem functions and multi-benefit projects in the context of integrated flood management for near-term implementation actions and projects. The Conservation Framework provides an overview of the floodway ecosystem conditions and trends and key conservation goals that further clarify the CVFPP’s ecosystem goal.

As further stated in Master Response 14, development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts. Information and outcomes from the regional planning process will inform the State-led basin-wide feasibility studies, preparation of a financing plan for the CVFPP, and the first update of the CVFPP (scheduled for completion by 2017). This regional effort is scheduled to be launched publicly in June 2012 and is anticipated to continue through 2013.

As further stated in Master Response 14, State-led feasibility studies are intended to support State decision making, regardless of the corresponding level of federal participation. They do not necessarily cover the scope of a

federal feasibility study; however, these State-led studies will be conducted to minimize, to the extent possible, additional federal study needed to determine federal participation and facilitate subsequent authorization by Congress, if appropriate.

The basin-wide feasibility studies will be conducted in two primary phases. The first phase will be conducted concurrently with regional planning, and will focus on developing specific objectives and analyzing physical options for system elements (such as bypass expansion and new bypasses). The second phase will combine the most promising options for system elements with the prioritized list of regional elements identified in the regional flood management plans. These combinations of system element options and regional elements will form “alternatives” for further evaluation and comparison on a systemwide scale, representing refined alternatives for implementing the SSIA.

The State intends to complete both studies by mid-2015 to provide time to incorporate information and findings into the 2017 CVFPP Update.

***G\_MULTIPLE1-03***

As stated in Master Response 15, the Central Valley Flood Protection Act of 2008 (SB 5) does not commit the State to any specific level of flood protection, action, prioritization, or funding (see CWC Section 9603). As part of CVFPP implementation, the regional planning process will gather DWR, the Board, and local interests (flood management agencies, land use agencies, flood emergency responders, permitting agencies, environmental and agricultural interests, and other stakeholders) to develop regional plans that will include lists of prioritized projects and funding strategies for each of the nine regions identified in the CVFPP. As stated in Master Response 14, information and outcomes from the regional planning process will inform the State-led basin-wide feasibility studies, preparation of a financing plan for the CVFPP, and the first update of the CVFPP (scheduled for completion by 2017). This regional effort is scheduled to be launched publicly in June 2012 and is anticipated to continue through 2013.

***G\_MULTIPLE1-04***

As stated in Master Response 9, specific project features ultimately implemented for the SSIA will depend on a host of factors. These factors include the results of detailed project feasibility studies; designs and cost estimates; environmental benefits and impacts; interaction with other local projects and system improvements; participation by local, State, and federal agencies in project implementation; and changing physical, institutional, and economic conditions.

Post-adoption activities (regional flood management planning, development of basin-wide feasibility studies, and development of a financing plan for the CVFPP) will further develop and refine additional project-specific details on cost, feasibility, funding, cost sharing, and local capacity to pay.

**G\_MULTIPLE1-05**

The comment is noted.

**G\_MULTIPLE1-06**

As stated in Master Response 8, the Central Valley Flood Protection Act of 2008 specifically requires the CVFPP to provide significant systemwide benefits, evaluate both structural and nonstructural improvements, provide a description of the entire system and its current performance, promote multipurpose projects, and leverage other funding sources. These requirements for the CVFPP are embedded in SB 5 and codified in Sections 9600–9625 of the CWC.

As described, supporting goals of the CVFPP include:

- *Improve Operations and Maintenance*—Reduce systemwide maintenance and repair requirements by modifying the flood management systems in ways that are compatible with natural processes, and adjust, coordinate, and streamline regulatory and institutional standards, funding, and practices for operations and maintenance, including significant repairs.
- *Promote Ecosystem Functions*—Integrate the recovery and restoration of key physical processes, self-sustaining ecological functions, native habitats, and species into flood management system improvements.
- *Improve Institutional Support*—Develop stable institutional structures, coordination protocols, and financial frameworks that enable effective and adaptive integrated flood management (designs, operations and maintenance, permitting, preparedness, response, recovery, and land use and development planning).
- *Promote Multi-Benefit Projects*—Describe flood management projects and actions that also contribute to broader integrated water management objectives identified through other programs.

**G\_MULTIPLE1-07**

The CVFPP and its technical attachments are considered a conceptual-level document. An independent technical review may be part of feasibility plan

development. However, during the development of the CVFPP and its technical attachments, DWR carried out an internal review of many of these attachment using outside independent reviewers. These technical studies also employed the “best available” models and tools. The USACE was provided with, reviewed, and commented on many of the technical studies. The Conservation Framework is also a conceptual-level document, and it is expected that the Conservation Strategy, as it is developed, will be subject to independent scientific peer review.

**G\_MULTIPLE1-08**

As stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)).

The SSIA includes the supporting goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time.

Post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, State and USACE permitting) will allow for detailed development and review of the conceptual ecosystem restoration targets described in the CVFPP and its attached Conservation Framework.

**G\_MULTIPLE1-09**

The comment is noted.

**G\_MULTIPLE1-10**

As stated in Master Response 7, Appendix E, “2012 Central Valley Flood Protection Plan Conservation Framework,” provides a preview of a long-term Conservation Strategy that DWR is developing to support the 2017 CVFPP Update. The Conservation Framework focuses on promoting ecosystem functions and multi-benefit projects in the context of integrated flood management for near-term implementation actions and projects. The Conservation Framework provides an overview of the floodway ecosystem conditions and trends and key conservation goals that further clarify the CVFPP’s ecosystem goal.

***G\_MULTIPLE1-11***

The comment is noted.

***G\_MULTIPLE1-12***

As stated in Master Response 15, the Central Valley Flood Protection Act of 2008 (SB 5) requires DWR to prepare a financing plan for the CVFPP after plan adoption. DWR recognizes that funding provided by Propositions 1E and 84 will not be sufficient to realize all of the improvements to flood management in the Central Valley envisioned in the CVFPP. As part of post-adoption regional planning, DWR, in collaboration with local and regional entities, will prepare a framework for financing projects at a regional level; State-led feasibility studies will further refine system elements of the CVFPP and confirm State interests in implementing local and regional projects. Both efforts will inform preparation of the CVFPP Financing Plan, which is scheduled for completion in 2013.

***G\_MULTIPLE1-13***

As stated in Master Response 17, the CVFPP is the first major policy-level study with broad applications that addresses climate change for flood management in California.

DWR has invested resources in developing a unique approach for assessing the impacts of climate change on Central Valley flood management. DWR has worked with leading experts and practitioners in the field to develop a new methodology based on the intensity of “atmospheric rivers,” which are fast-moving, concentrated streams of water vapor that can release heavy rains. The commonly known “Pineapple Express” is a form of atmospheric river.

However, insufficient data are available to be able to predict the magnitude or frequency of climate change impacts on extreme storm events, and climate projections from global climate models have difficulty representing regional- and local-scale precipitation patterns and processes that drive extreme events. DWR is working instead on the concept of prudent decision making that focuses on investments that could accommodate a broader range of climate change scenarios, rather than optimizing investments within a few selected extreme scenarios

***G\_MULTIPLE1-14***

As stated in Master Response 9, three preliminary approaches were used to explore a range of potential physical changes to the existing flood management system and help highlight needed policies or other management actions: Achieve SPFC Design Flow Capacity, Protect High-Risk Communities, and Enhance Flood System Capacity. Evaluating these



preliminary approaches provided information on their costs, benefits, and overall effectiveness. None of the three preliminary approaches were found to fully satisfy the legislative requirements and CVFPP goals in a cost-effective manner. However, the most promising elements of each were combined to formulate the State's preferred approach—the SSIA. The CVFPP and accompanying attachments provide additional details about the formulation and screening of elements included in the SSIA.

The SSIA was formulated by assembling the most promising, affordable, and timely elements of the three preliminary approaches to best meet legislative requirements and identified CVFPP goals. The SSIA reflects a balanced and fiscally responsible approach, which will be developed further as DWR completes more detailed studies and designs for site-specific capital improvements and develops other, systemwide flood improvement projects.

***G\_MULTIPLE1-15***

As stated in Master Response 5, SB 5 requires each city and county in the Sacramento–San Joaquin Valley to amend its general plan within 24 months of the Board's adoption of the CVFPP (see CGC Sections 65302.9 and 65860.1) to include consistent information. These cities and counties must also amend their zoning ordinances accordingly within 36 months of the Board's adoption of the CVFPP. Cities and counties could consider incorporating the following information from the CVFPP into their general plan amendments:

- Data and analyses contained in the CVFPP, such as the locations of the SPFC and other flood management facilities, locations of property protected by those facilities, and locations of flood hazard zones
- Goals, policies, and objectives based on the CVFPP's data and analyses, for the protection of lives and property and reduction of the risks of flood damage
- Feasible implementation measures designed to carry out the goals, policies, and objectives

***G\_MULTIPLE1-16***

DWR intends to provide guidance as well as technical and financial assistance to local agencies to prepare the regional flood management plans, subject to availability of funds.

Regional flood management plans are anticipated to do the following:

**2012 Central Valley Flood Protection Plan  
Final Program Environmental Impact Report**

- Assess regional flood risks and management actions (projects) to reduce these risks
- Identify regional priorities, including criteria used to prioritize individual projects
- Describe specific projects, including their potential costs, regional and systemwide benefits, and beneficiaries
- Provide a financial plan describing how the proposed projects would be funded, including cost sharing and financing for local shares
- Describe regional governance of flood management

Development of regional plans and the formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts. Information and outcomes from the regional planning process will inform the State-led basin-wide feasibility studies, preparation of a financing plan for the CVFPP, and the first update of the CVFPP (scheduled for completion by 2017). This regional effort is scheduled to be launched publicly in June 2012 and is anticipated to continue through 2013.

**Moricz, Nancy**

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**From:** National Wildlife Federation Action Fund [info@nwf.org] on behalf of Robyn Carmichael [carmichaelr@nwf.org]  
**Sent:** Wednesday, April 11, 2012 12:53 PM  
**To:** Cvfpp\_Comments  
**Subject:** Adopt a Strong Central Valley Flood Protection Plan (CVFPP)

Apr 11, 2012

Central Valley Flood Protection Board

G\_NWF1-01

In the Central Valley Flood Protection Plan, the Department of Water Resources and the Central Valley Flood Protection Board should adopt a robust and integrated approach that best positions California for the floods, water needs and healthy wildlife of today and tomorrow.

The best way to do that is to adopt a flood plan that increases the role of healthy floodplains, flood bypasses, and levee setbacks to give rivers room to spread out during high water flows. These are proven and cost-effective ways to safely manage large floods and have been successfully employed in communities across the county.

G\_NWF1-02

In addition to protecting communities, this approach to flood management provides land-use planning certainty for local governments, enhances our water supply by protecting the Delta and recharging groundwater, reduces uncontrolled flood risk for agriculture, and enormously benefits California's fish and wildlife.

Sincerely,

Ms. Robyn Carmichael  
2929 Connecticut Ave NW Apt 508  
Washington, DC 20008-1400

## **National Wildlife Federation Action Fund**

### ***Response***

#### ***G\_NWF1-01***

As noted in Master Response 1, the Central Valley Flood Protection Act of 2008 requires DWR to evaluate ways to “...expand the capacity of the flood protection system in the Sacramento–San Joaquin Valley to either reduce floodflows or convey flood waters away from urban areas” (CWC Section 9616(a)(2)). Bypasses have served an essential role in providing these functions.

This point is further discussed in Master Response 7, where it states that under the SSIA, ecosystem restoration opportunities are integral parts of flood system improvements, including projects for rural-agricultural areas, small communities, and urban areas. Integrating ecosystem restoration into these flood protection projects will focus on preserving important SRA habitat along riverbanks and help restore the regional continuity and connectivity of such habitats.

#### ***G\_NWF1-02***

Master Response 8 reiterates the objectives of the CVFPP, wherein it states, in accordance with legislative direction and reflecting stakeholder input, that DWR prepared the 2012 CVFPP to describe the State’s vision for flood management in the Central Valley. This vision for flood management in the Central Valley is for a sustainable flood management system that provides a high degree of public safety, promotes long-term economic stability, and supports restoration of compatible riverine and floodplain ecosystems. The proposed program achieves a balance of these objectives.

# G\_PETITION1

March 14, 2012

State of California  
Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento CA 95821

RE: Agriculture and Central Valley Flood Issues

G\_PETITION1-01 . The proposal affects some 40,000 acres of land in the Central Valley. The existing flood system is outdated and needs improvements, **but any changes should be thoroughly examined, considered and betted through affected landowners and farmers.** Unfortunately, the input from affected landowners and farmers have been limited, and the timeline has very short.

G\_PETITION1-02 I am very concerned about the proposed plan for the following reasons:

- G\_PETITION1-03 • The potential **farmland conversion** impacts;
- G\_PETITION1-04 • The **importance of Central Valley agriculture** and the potential impacts on the **viability** of Central Valley agriculture;
- G\_PETITION1-05 • **Private property rights**;
- G\_PETITION1-06 • Impacts on particular **parcels, farming operations, reclamation district areas**, etc.
- G\_PETITION1-07 • Impacts on **livelihoods and businesses**;
- G\_PETITION1-08 • Impacts on **property values**;
- G\_PETITION1-09 • The potential for **eminent domain** abuses;
- G\_PETITION1-10 • The importance of preserving the capacities of the **flood bypasses** by retaining lands in agriculture;
- G\_PETITION1-11 • The potential for **conflicts** between the **flood protection** purposes of the bypasses and the prospect of extensive **habitat restoration** in the bypasses;
- G\_PETITION1-12 • Improper subordination in the Plan of traditional flood protection purposes to ecosystem restoration;
- G\_PETITION1-13 • The need for dedicated **funding, permitting, and legal enforcement** to maintain the flood protection functions of weirs and bypasses;
- G\_PETITION1-14 • The **timing of inundation** in the bypasses and the **compatibility** of farming with future inundation for proposed habitat and fish passage purposes;
- G\_PETITION1-15 • Potential **redirected impacts** and **unintended consequences** of the Flood Plan, including potential increased pressure on existing levees;
- G\_PETITION1-16 • The need for meaningful **involvement from farmers, landowners, and other affected interests** in rural and agricultural areas;
- G\_PETITION1-17 • **Assurances** associated with **potential liabilities** under the federal and state **endangered species** acts;
- G\_PETITION1-18 • Imposing **flood protection standards** on rural and agricultural areas that are unreasonable, impracticable, and ill-suited to a rural setting (inflexible FEMA rules, 100-yr. level of flood protection);
- G\_PETITION1-19 • Shifting greater burdens, pressures, risks and liabilities on to **agricultural and rural areas** when compared to urban and urbanizing areas.

Sincerely,

State of California  
Central Valley Flood Protection Board  
Central Valley Flood Protection Plan  
February 21, 2012

Debbie Catania  
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Debbie Catania  
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Grimes Boat Banding  
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Debbie Cate  
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Wesley Kilgore  
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Herbert Fruchtenicht  
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MICHAEL K GEYER  
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Fred A. Darst  
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Bill Gillaspay  
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William J Gillaspay  
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State of California  
Central Valley Flood Protection Board  
Central Valley Flood Protection Plan  
February 21, 2012

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*Robert Vaughn*  
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State of California  
Central Valley Flood Protection Board  
Central Valley Flood Protection Plan  
February 21, 2012

Tim Hendrick


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John Terry

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Doug Roebel

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BILL PALMER

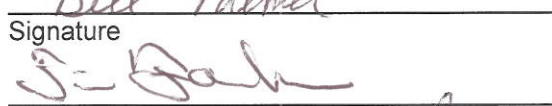
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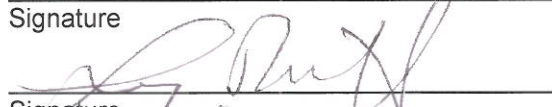
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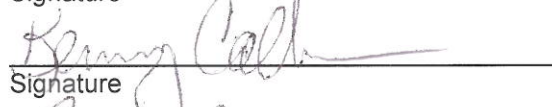
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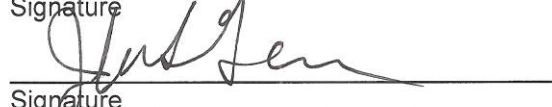
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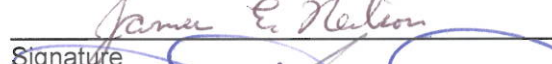
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Central Valley Flood Protection Board  
Central Valley Flood Protection Plan  
February 21, 2012

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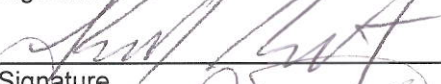
  
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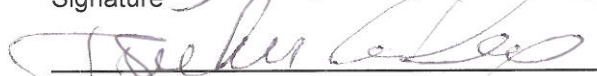
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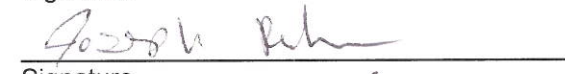
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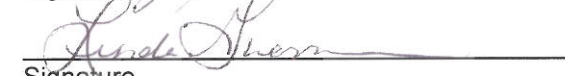
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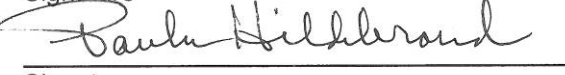
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Central Valley Flood Protection Board  
Central Valley Flood Protection Plan  
February 21, 2012

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Central Valley Flood Protection Board  
Central Valley Flood Protection Plan  
February 21, 2012

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Harriet Bryant  
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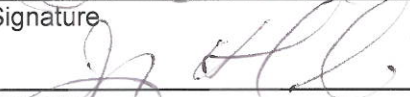
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State of California  
Central Valley Flood Protection Board  
Central Valley Flood Protection Plan  
February 21, 2012


David Croll  
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Jerry Howard  
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MARK REIFF  
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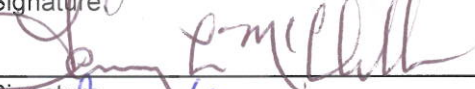
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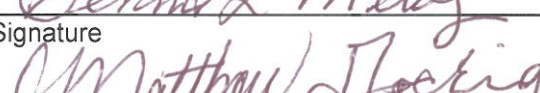
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Central Valley Flood Protection Plan  
February 21, 2012

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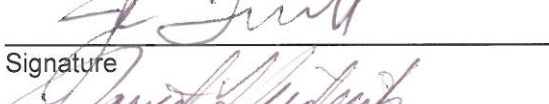
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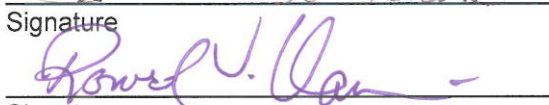
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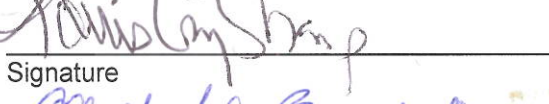
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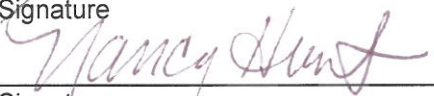
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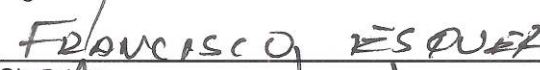
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March 14, 2012

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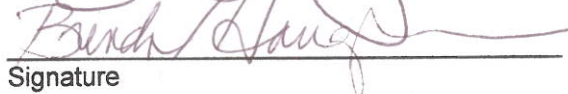
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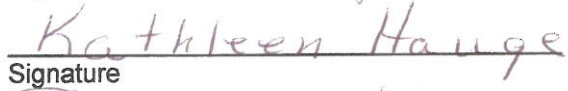
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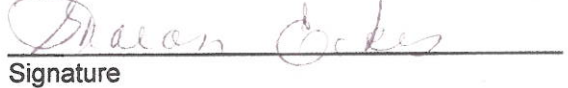
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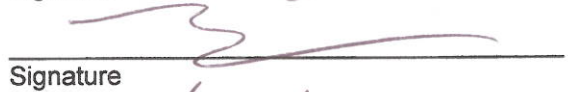
  
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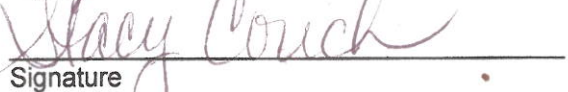
  
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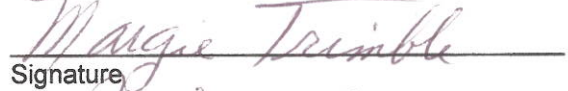
  
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# YOLO COUNTY FARM BUREAU

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State of California

Central Valley Flood Protection Board

Central Valley Flood Protection Plan

February 21, 2012

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*Charles Dudley*  
Charles Dudley

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*Eric Paulsen*  
Eric Paulsen

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*Robert Bammy*  
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State of California  
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Debra Card  
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February 21, 2012

*Linda Ferry*

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## **G\_PETITION1**

### ***Response***

#### ***G\_PETITION1-01***

As stated in Master Response 13, the CVFPP and related PEIR have included substantial outreach and engagement activities since 2009 to help first develop the goals of the CVFPP, and more recently to allow for comments on the environmental analysis presented in the DPEIR. A full list of participants and forms of engagement related to the CVFPP are provided in Attachment 5, “Engagement Record,” in Appendix A, “Central Valley Food Protection Plan.” Master Response 13, especially Section b, describes the future opportunities for engagement that will be available to landowners, farmers, and others as further program planning proceeds.

The comments in this letter do not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR. The comments are noted.

#### ***G\_PETITION1-02***

As stated in Master Responses 2 and 3, the CVFPP is a high-level document that describes the State’s vision for a sustainable flood management system in the Central Valley through improvements such as bypass expansions. For preliminary planning purposes, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (that is, would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. These preliminary planning estimates will be refined during subsequent project-level analyses. The actual needs for and uses of land, including farmland conversion, will vary depending on the types and locations of specific flood system improvements. The CVFPP, as noted in Sections 3.4.1 and 3.5.1 of Appendix A, “Central Valley Flood Protection Plan,” describes State investments in agricultural conservation easements to help preserve agriculture.

The DPEIR does, in fact, address potential effects on agricultural lands and productivity. As stated in Master Response 2, the DPEIR recognizes that converting lands from agricultural uses would result in potentially significant and unavoidable impacts, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA) in Section 3.3, “Agriculture and Forestry Resources,” of the DPEIR. Many commenters expressed the view that such conversions should not occur, and that including such conversions in the

SSIA undervalues agriculture as a primary industry in the Central Valley that provides a range of economic, social, habitat, and other benefits. Many commenters also explained that particular lands have been in family ownership for generations, often dating back to the earliest days of statehood. DWR and the Board respect these benefits and the relationships that many individuals have to any lands that might be converted, which are anticipated to be substantial topics during any project-level public engagement processes. However, the DPEIR has adequately addressed the environmental issues at a program level and no new significant environmental topics or information were raised in the comments.

For additional details related to the potential agricultural land conversion effects of the CVFPP, see Master Response 2. For additional details related to the effects of the CVFPP on agriculture, see Master Responses 2 and 3.

***G\_PETITION1-03***

See response to comment G\_PETITION1-02.

***G\_PETITION1-04***

DWR and the Board recognize that the construction and operation of proposed management actions (i.e., new bypasses, levee setbacks, and expanded floodways) may affect private property rights. As stated in Master Response 2, because the SSIA was developed at a conceptual or program level, it does not identify any specific project; therefore, any lands or property rights that may be needed to implement the plan are unknown at this time. It is anticipated that land uses within any expansions of the flood management system would be a mix of flood facilities and agricultural and environmental conservation uses; however, the exact amount and geographical distribution of these land uses will require further analyses as future specific projects are considered and evaluated.

The conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide

feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified.

The CVFPP states the preference to work with willing landowners for needed land acquisitions. The SSIA includes State investments in agricultural conservation easements, which involves working with willing landowners where easements would be consistent with local land use plans. These easements would be used to preserve agriculture and prevent urban development in current agricultural areas, discouraging conversion to land uses that would increase flood risks within floodplains protected by SPFC facilities. Agricultural conservation easements could be purchased through various DWR programs; an example is DWR’s Flood Corridor Program, which focuses on nonstructural flood risk reduction integrated with protection of natural resources and agricultural lands.

DWR and the Board respect private property rights, and all land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable.

For additional details, see Master Response 2.

***G\_PETITION1-05***

As stated in Master Responses 2 and 3, and as discussed in response to comment G\_PETITION1-02 above, the conversion of lands from agricultural uses would result in potentially significant and unavoidable impacts, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA). The PEIR includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) in Section 3.3, “Agriculture and Forestry Resources,” of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed. Therefore, DWR and the Board have determined that the DPEIR has adequately addressed the environmental issues related to the conversion of agricultural land to nonagricultural uses at a program level. For additional details, see Master Responses 2 and 3.

DWR and the Board are aware that if a future site-specific project is implemented, project-level CEQA compliance may be required to analyze

specific environmental impacts and to identify required mitigation measures, where appropriate, including projects that propose converting agricultural lands to nonagricultural uses. See Section 2.5.1, “Implementation in Accordance with Applicable Laws and Regulations,” of the DPEIR, which states that “...subsequent implementation actions stemming from adoption of the proposed program would involve additional project-level environmental review and documentation to the extent required by CEQA and the CEQA Guidelines.”

***G\_PETITION1-06***

This comment raises issues of a social and economic nature, which are beyond the scope of analysis required by CEQA, except to the extent that they may link the proposed project to potentially significant adverse effects on the physical environment or to the extent that they are considered as part of the determination of significance of a physical environmental effect (see State CEQA Guidelines Section 15131). Section 3.16, “Population, Employment, and Housing,” of the DPEIR discusses issues relevant to these topics, and Master Responses 2 and 3 provide additional information on effects related to agricultural land conversion and the sustainability of rural-agricultural economies, respectively.

***G\_PETITION1-07***

This comment raises issues of a social and economic nature, which are beyond the scope of analysis required by CEQA, except to the extent that they may link the proposed project to potentially significant adverse effects on the physical environment or to the extent that they are considered as part of the determination of significance of a physical environmental effect (see State CEQA Guidelines Section 15131). As stated in Master Response 1, concerns were expressed that preliminary identification of conceptual bypass elements and other SSIA system elements might create a “cloud” over the properties, making it difficult to manage, obtain loans for, or sell those properties. DWR and the Board wish to make clear that the conceptual designs reflected in the CVFPP do not reflect a determination regarding any specific properties, and that the potential involvement of particular properties in any future project is entirely speculative at this time. For additional details, see Master Response 1.

***G\_PETITION1-08***

The commenter states a concern about possible “eminent domain abuses,” but does not further clarify this concern or comment on the environmental analysis provided in the DPEIR. In the event that future steps necessitate the use of eminent domain, such actions would be undertaken by agencies with the legal authority to exercise such powers and in compliance with



federal and State law. California state law limits public agencies' use of eminent domain, and agencies seeking to implement management actions under the CVFPP would be subject to all the restrictions and limitations that exist for other agencies in California. For additional details, see response to comment G\_PETITION1-04.

**G\_PETITION1-09**

As stated in Master Response 2, a portion of the lands and easements needed to implement the SSIA would support improvements to urban levees, but the majority (by surface area) would support floodway expansion and repair and/or reconstruction of levees in rural areas. For preliminary planning purposes, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. However, these preliminary planning estimates will be refined during subsequent project-level analyses. The actual needs for and uses of land will vary depending on the types and locations of specific flood system improvements.

The conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified. The CVFPP states the preference to work with willing landowners for needed land acquisitions. All land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable. For additional details, see Master Response 2.

As stated in Master Responses 1, 2, and 13, future project-level planning for the CVFPP, including possible bypass expansions and new bypasses, will involve the development of basin-wide feasibility studies, the completion of project-level proposals, and compliance with environmental laws and regulations. During these efforts, opportunities to invest in agricultural easements with willing landowners to preserve agriculture, as

well as ensuring compliance with Mitigation Measures AG-1a, AG-1b, and AG-1c (NTMA and LTMA), which address specific ways to lessen impacts on existing agriculture, will occur. For additional details, see Master Responses 1, 2, and 13.

As stated in Master Response 14, both the Board and USACE have statutory roles for oversight of modifications to the State-federal flood management system (the SPFC), executed through their respective project review and permitting authorities. The Board has review and permitting authority under the California Water Code and CCR Title 23 for any project, including those resulting from the CVFPP, that may encroach upon, improve, alter, or affect adopted plans of flood control (including the State-federal flood management systems, regulated streams, and designated floodways under the Board's jurisdiction). DWR and the Board recognize that multiple types of crops are currently cultivated in the floodways which can pass the design flows. When the Board permits an activity in the federal flood control facilities, which includes the bypasses, the Board requires technical information that demonstrates the activity will not affect the design flows. Any future management action undertaken that may affect design flow in a federal flood control facility will need to be designed to pass the design flow.

#### ***G\_PETITION1-10***

This comment notes the potential for conflicts between the values of bypasses for flood protection and habitat restoration. The comment does not include specific requests for additional information or concerns with the environmental analysis presented in the DPEIR. As stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)). Among these multiple objectives is the goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk-reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time. For additional details, see Master Response 7.

The DPEIR prepared for the CVFPP concluded that implementing conservation and habitat restoration actions could adversely affect agricultural land and production (see Section 3.3, "Agriculture and Forestry Resources," of the DPEIR). Impact AG-3 (NTMA) states, "Integration of environmental conservation elements into NTMAs is designed to enhance habitat and restore natural ecosystem processes and functions. These

elements would be developed to increase the quantity, quality, diversity, and connectivity of riparian, wetland, floodplain, emergent, and shaded riverine aquatic habitats. As a result, conversion of agricultural land to nonagricultural uses would result in some areas from implementation of these elements. This land would typically be placed under a conservation easement or some other mechanism would be used to preserve the habitat in perpetuity.”

Impact AG-3 (NTMA) also notes that “Purchasing flood easements could provide beneficial effects by preventing development from occurring on agricultural land and preserving land uses compatible with periodic flooding, which may preserve agricultural land uses. As demonstrated throughout the Central Valley, multiple types of crops are currently cultivated in floodways under appropriate conditions. Conversely, agricultural lands within the floodway may no longer be suitable for certain types of agricultural production because they would be inundated during high-water events. Soil conditions in a parcel may not change, agricultural infrastructure may remain in place (e.g., irrigation facilities), and other factors critical to agricultural productivity may remain unaffected. However, regular inundation within the expanded floodway may make certain types of agricultural production in the floodway no longer feasible.”

As stated in Master Responses 2 and 3, the PEIR includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. Therefore, DWR and the Board have determined that the DPEIR has adequately addressed the environmental issues related to the conversion of agricultural land to nonagricultural uses at a program level. For additional details, see Master Responses 2 and 3.

#### ***G\_PETITION1-11***

As stated in Master Response 19, the primary goal is “to improve flood risk management.” The four supplemental goals, by definition, are supplemental to the primary goal to improve flood risk management.

As further stated in Master Response 19, the California Central Valley Flood Protection Act of 2008 (SB 5) defined multiple objectives for the CVFPP, codified in CWC Section 9616, to be achieved wherever feasible. Goals for the CVFPP were collaboratively drafted by DWR, its partners (the Board and USACE), and interested parties through an extensive communications and engagement process, capturing the guidance and objectives provided by CWC Section 9616. As a result of this process, one primary goal and four supporting CVFPP goals were established and provided guidance in forming specific CVFPP policies and physical elements. The process used to develop CVFPP goals is described in Section

1.6 of the Plan, titled “Formulation of the 2012 Central Valley Flood Protection Plan.” Much of this information is repeated and/or summarized in Section 2.1.2, “Purpose and Objectives of the Proposed Program,” and Section 2.2, “Development of the Proposed Program,” of the DPEIR. For additional details, see Master Response 19.

#### ***G\_PETITION1-12***

The commenter notes the need for dedicated funding, permitting, and legal enforcement to maintain flood protection functions. No specific issues related to the environmental analysis presented in the DPEIR are raised in this comment. As stated in Master Responses 14 and 15, the Central Valley Flood Protection Act of 2008 (SB 5) requires DWR to prepare a financing plan for the CVFPP after plan adoption (see Section 4.7 in Appendix A, “Central Valley Flood Protection Plan”). Up to \$1.7 billion of bond funding will be available during the next 5 years for CVFPP-related projects. Use of bond funds will be prioritized based on the severity of flood risks, considering proposed project costs and benefits and contributions to basin-wide solutions (consistent with the CVFPP). After the Board adopts the CVFPP, DWR will create a financing plan for potential legislative actions to fund the next increment of capital improvements, O&M, and residual risk management activities for the CVFPP.

As stated in Master Response 3, the State recognizes potential regional differences in the capacity to pay for flood system improvements and O&M. The CVFPP proposes working with rural interests to develop appropriate criteria for rural levee repairs to cost-effectively address known problems (see CVFPP Sections 3.4.1 and 4.1.4). Further, the plan proposes reviewing O&M roles and responsibilities for SPFC facilities and forming regional maintenance authorities, as appropriate, in the interest of improving maintenance efficiency and more equitably distributing system maintenance costs to beneficiaries. For example, DWR has developed cost-sharing guidelines to promote multiobjective projects and to provide additional financial support for economically disadvantaged areas.

As stated in Master Response 14, both the Board and USACE have statutory roles for oversight of modifications to the State-federal flood management system (the SPFC), executed through their respective project review and permitting authorities. The Board has review and permitting and enforcement authority under the California Water Code and CCR Title 23 for any project, including those resulting from the CVFPP, that may encroach upon, improve, alter, or affect adopted plans of flood control (including the State-federal flood management systems, regulated streams, and designated floodways under the Board’s jurisdiction).

Implementing the SSIA requires a wide range of actions for planning, developing, analyzing, constructing, and managing improvements to the SPFC. This work will be organized into several programs, established and led by DWR and implemented in coordination with local, State, and federal partnering agencies. These programs are under DWR's existing FloodSAFE California Program. Each program is responsible for specialized implementation of different portions of the SSIA; together, they cover all work required for implementation and management.

For additional details, see Master Responses 3, 14, and 15.

***G\_PETITION1-13***

As stated in Master Response 1, the PEIR recognizes that converting current land uses (particularly agricultural uses) to bypass and related uses (such as habitat and recreation) would result in potentially significant and unavoidable impacts, particularly on agriculture, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMAs and LTMAAs). The timing of inundation in bypasses is a project-level component that cannot be evaluated in a program-level EIR such as the DPEIR. The comment is noted, and potential impacts on the physical environment from the quantities and timing of bypass flooding for flood conveyance, habitat, fish passage, or any other purpose will be addressed in project-level CEQA documents as necessary. The DPEIR has adequately addressed the environmental issues at a program level, and no new significant environmental topics or information were raised in the comments. For additional details regarding new and expanded bypass development, see Master Response 1.

As stated in Master Responses 2 and 3, the DPEIR includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) in Section 3.3, "Agriculture and Forestry Resources," of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed. For additional details, see Master Responses 2 and 3.

***G\_PETITION1-14***

As stated in Master Response 12, the State is sensitive to the potential effects of repairs or improvements to SPFC facilities that may result in redirected hydraulic impacts upstream or downstream from these facilities, including potential increased pressure on existing levees. Future feasibility studies are needed to refine the proposed elements of the SSIA, and the ultimate configuration of facilities may vary from those presented in the 2012 CVFPP. Only at that time will the State have project-specific modeling results that indicate the specific magnitude and extent of hydraulic impacts, if any, from planned improvements within the system.

The issue of potentially redirecting hydraulic impacts is also addressed in Section 3.13, "Hydrology," in the DPEIR under Impact HYD-2 (NTMA), Impact HYD-4 (NTMA), Impact HYD-2 (LTMA), and Impact HYD-4 (LTMA). As indicated in these impact discussions, any project proponent implementing a project consistent with the SSIA that would affect flood stage elevations would need to obtain various applicable permits before project implementation (such as Section 408 and 208.10 authorization from USACE and encroachment permits from the Board). The project proponent would need to analyze the potential for the project to locally impede flow or transfer flood risk by causing changes in river velocity, stage, or cross section. Projects would not be authorized if changes in water surface elevation, and thus flooding potential, would increase above the maximum allowable rise set by these agencies. If the design of a project would result in an unacceptable increase in flooding potential, a project redesign or other mitigation would be required to meet agency standards before the project could be authorized and implemented. For additional details, see Master Response 12.

***G\_PETITION1-15***

As stated in Master Responses 13 and 14, anticipated activities after adoption of the 2012 CVFPP include regional flood management planning, development of basin-wide feasibility studies, and completion of project-level proposals and environmental compliance. These efforts will engage local entities and stakeholders to help identify projects to meet local and regional needs for flood management, refine the conceptual system elements proposed in the adopted plan, and identify specific projects for construction.

As part of regional flood management planning, regional plans will be prepared with active participation by regional implementing, operating, and maintaining agencies; local land use agencies (counties and cities); agricultural and environmental interests; emergency responders; and tribes. This effort will collect on-the-ground information regarding flood risks and

needs, identify local and regional improvement projects, assess the performance and feasibility of these projects, and develop basin plans that reflect the priorities of local entities in reducing flood risks in each of the nine regions identified in the CVFPP. Stakeholder engagement will be an important and complex component of the basin-wide feasibility studies. The studies will be conducted in coordination with USACE (and ongoing cost-share feasibility studies) and local implementing agencies. It is anticipated that working groups will form to help evaluate and refine bypass expansion options, identify implementation challenges, and provide input in the planning process. For additional details, see Master Responses 13 and 14.

**G\_PETITION1-16**

This comment raises concerns about assurances associated with potential liabilities under the federal ESA and the CESA. The CVFPP and related DPEIR do not alter these laws or related liabilities for landowners. As stated in Master Response 7, the CVFPP is intended to meet multiple objectives, including the integration of ecosystem benefits. It would be speculative to assume that a private property owner could face additional liabilities under the ESA or CESA as a consequence of a future project. See Master Responses 13 and 14 for additional information about how project proposals under the CVFPP would be developed in the future and public engagement is encouraged in post-adoption processes.

Section 3.6, “Terrestrial Biological Resources,” of the DPEIR discusses the impacts of the proposed program on federally listed and State-listed endangered species. Mitigation Measure BIO-T-3b in Section 3.6 states that “The project proponent will coordinate with the appropriate regulatory agency (e.g., USFWS or DFG) to determine acceptable methods for minimizing or compensating for effects on a species; and applicable State and/or federal permits will be secured and permit requirements will be implemented (see Section 3.6, “Biological Resources—Terrestrial,” of the DPEIR). Mitigation Measure BIO-T-3c states that “The project proponent will consult or coordinate with USFWS under the federal ESA and DFG under the CESA regarding potential impacts on listed plant and wildlife species and associated critical habitat. The project proponent will implement any additional measures developed through the ESA and CESA consultation processes, including conditions of Section 7 biological opinions and Section 2081 permits” (see Section 3.6, “Biological Resources—Terrestrial,” of the DPEIR).

As stated in Master Response 1, several commenters expressed concern regarding the potential for particular properties to be included in a bypass proposal. Concerns were also expressed that preliminary identification of conceptual bypass designs might create a “cloud” over the properties,

making it difficult to manage, obtain loans for, or sell those properties. DWR and the Board wish to make clear that the conceptual designs reflected in the CVFPP do not reflect a determination regarding any specific properties, and that the potential involvement of particular properties in any future bypass project is entirely speculative at this time. Potential agricultural land conversions and the resulting effects are discussed further in Master Responses 2 and 3.

#### ***G\_PETITION1-17***

This comment does not raise issues or concerns about the environmental analysis presented in the DPEIR, but questions whether “unreasonable, impracticable, and ill-suited” flood protection standards would be imposed in a rural setting. As stated in Master Responses 3 and 4, the CVFPP does not create any new requirements or assurances for levels of flood protection in the Central Valley; the local findings requirements regarding the required levels of protection were established by the State Legislature with the passage of SB 5. The Central Valley Flood Protection Act of 2008 further clarifies that the CVFPP is a descriptive document, and neither the development nor the adoption of the CVFPP constitutes a commitment by the State to provide any particular level of flood protection (CWC Sections 9603(a) and 9603(b)).

The SSIA also outlines various State investments that would contribute to improved flood-risk management in rural-agricultural areas, and that are aimed at promoting sustainable rural-agricultural economies without inducing imprudent urban development in floodplains (e.g., purchasing agricultural easements from willing landowners, when consistent with local land use planning). The SSIA does not target a minimum level of flood protection for State investments in rural-agricultural areas outside of the small communities because conditions and local interests differ from one area to another, and additional regional planning efforts are needed to formulate solutions that meet community needs and State investment priorities. However, the SSIA proposes (1) projects that maintain levee crown elevations for rural SPFC levees and provide all-weather access roads for inspection and floodfighting; (2) economically feasible projects that resolve known SPFC performance problems, in conjunction with development of criteria for rural levee repairs; (3) system elements (e.g., bypass expansion) that lower peak flood stages within some rural channels; and (4) actions to manage residual flood risks.

The State supports efforts to reform FEMA’s NFIP to more equitably reflect corresponding flood risks, including establishing a flood zone for agriculturally based communities to allow replacement of existing structures or reinvestment development in the floodplain. The State also supports identifying a special, lower-premium rate structure that reflects



actual flood risks for agricultural buildings in rural-agricultural areas located in Special Flood Hazard Areas. The State will work with local flood management interests to pursue reform of the FEMA NFIP.

For additional details, see Master Responses 3 and 4.

***G\_PETITION1-18***

The commenter expresses concern that “greater burdens, pressures, risks, and liabilities” will be placed on agricultural and rural areas when compared to urban and urbanizing areas. State law (SB 5) defines an urban level of flood protection for urban and urbanizing areas within the Sacramento–San Joaquin Valley as that level of protection necessary to withstand a 1-in-200-year flood event (CGC Sections 65007, 65865.5, 65962, and 66474.5). Under SB 5, non-urbanized areas are subject to the national FEMA standard of flood protection. Under the terms of SB 5, adoption of the 2012 CVFPP by the Board would trigger the schedule of compliance actions required for cities and counties to make findings related to an urban level of flood protection for urban and urbanizing areas, and the FEMA standard for non-urbanized areas.

As stated in Master Response 4, the SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises. All areas protected by the SPFC would benefit from State investments included in the SSIA to improve residual risk management, such as enhanced flood emergency preparedness, response, and recovery.

As stated in Master Response 3, implementing the SSIA would increase the percentage of the population receiving at least 100-year (1 percent annual chance) flood protection from the current 21 percent to more than 90 percent (CVFPP, page 3-40). The remaining 10 percent of the population would receive benefits through residual risk management actions. Based on initial planning-level cost estimates developed to evaluate elements of various scenarios considered under the 2012 CVFPP, more than 20 percent of total SSIA investments would support rural-agricultural and small community improvements, and residual risk management. In addition, systemwide elements (which account for almost 40 percent of total SSIA investments) are anticipated to provide flood stage reduction benefits to many of the areas in the system, including small communities and rural-agricultural areas. The SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises.

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As stated in Master Response 4, the CVFPP does not include levee design criteria for rural areas, but recognizes that the urban levee design criteria are not always practical or affordable for protecting rural areas. The SSIA does not target a minimum level of flood protection for State investments in rural-agricultural areas outside of the small communities because conditions and local interests differ from one area to another, and additional regional planning efforts are needed to formulate solutions that meet community needs and State investment priorities. DWR supports future development and implementation of rural levee repair criteria in coordination with local and regional flood management agencies.

For additional details, see Master Responses 3 and 4.

April 20, 2012

**SUBJECT: Comments on the CVFPP and March 2012 CVFPP DPEIR**

**Attention: Mary Ann Hadden  
Department of Water Resources**

**Nancy Moricz  
Central Valley Flood Protection Board**

**G\_PGE1**

G\_PGE1-01 Pacific Gas & Electric Company (PG&E) appreciates the opportunity to comment on the Central Valley Flood Protection Plan (CVFPP) and its Draft Program Environmental Impact Report (DPEIR). We understand that the DPEIR evaluates the State Systemwide Investment Approach (SSIA), which is the proposed approach for flood control described in the CVFPP. While the CVFPP is a long-term planning document, the SSIA consists of a programmatic set of broadly described management actions that can be implemented as part of the CVFPP. Adoption of the CVFPP by the Central Valley Flood Protection Board (CVFPB), which is anticipated in July 2012, will provide general direction for long-term implementation of improvements to the Central Valley flood management system. We have reviewed both documents and have identified several areas of concern. Below we address these concerns and provide specific comments on the text of the Utilities and Public Services chapter of the DPEIR.

G\_PGE1-02 **COMMENTS ON THE CVFPP**

PG&E understands that the CVFPP is a critical program-level document intended to manage flood risk along the Sacramento and San Joaquin River systems over the next 20 years. PG&E supports activities that will improve the levee system in the Central Valley to enhance public safety, protect public and private property, and enhance environmental values. PG&E owns and operates thousands of facilities located within the planning areas included in the CVFPP and the DPEIR. Unfortunately, neither document adequately addresses these facilities and the potential impact of the CVFPP to the generation, transmission and distribution of electric and gas service to PG&E's 15 million customers. Upgrading, relocating or protecting utility infrastructure is a complex, time-consuming, and costly undertaking, and could result in environmental impacts that are not addressed in the DPEIR.

G\_PGE1-03 If the CVFPP is adopted and implementation begins, we strongly urge all future project proponents to work closely with PG&E during the earliest planning phases of project planning. PG&E believes that this approach will identify the best options for addressing affected utility facilities in a manner that maximizes public safety while minimizing environmental impacts and service disruptions. The placement of gas and electric facilities in or in proximity to levees is presently permitted by existing federal and state regulations. As necessary, geotechnical mitigation measures can be incorporated into construction design to ensure that utility facilities

effectively co-exist with flood protection facilities. Relocation of gas and electric facilities away from levees should be considered the exception, not the rule.

G\_PGE1-04

When utility relocations are unavoidable, PG&E can help ensure that environmental impacts of such relocations are adequately addressed in the project-specific CEQA document and environmental permits for the future levee work. This will both avoid unnecessary delays associated with separate environmental review and permitting for any utility relocations and ensure that lead agencies for future levee projects comply with CEQA. We believe that through working collaboratively with the CVFPB and other project proponents, we can identify common ground that protects and improves the levee system, while at the same time ensures PG&E's ability to provide safe, reliable and affordable service to our customers.

## **COMMENTS ON THE DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT**

G\_PGE1-05

### **Section 3.20.1 Environmental Setting – Electric and Gas Facilities**

The description of gas and electric service providers on page 3.20-5 is generic to the state overall and does not accurately reflect the scope of potentially affected utilities in the Extended Systemwide Planning Area, which is the study area for the DPEIR. As an example, the maps on pages 3.20-7 and 3.20-8 provide information only on gas and electric transmission facilities – not distribution facilities. On the electric side, PG&E has over 850 transmission towers, 9,000 distribution poles, and ten substations within 100 feet of a levee centerline within the DPEIR study area. In addition, PG&E has many other facilities including power plants, gas compressor stations, and hydroelectric facilities within the Extended Systemwide Planning Area. We are working collaboratively with the staff of DWR, CVFPB, and the US Army Corps of Engineers (Corps) to further refine the mapping of utility infrastructure within the study area. In order to accurately evaluate potential impacts and develop effective mitigation measures as required by CEQA, the scope of utility infrastructure within the study area must be adequately understood.

### **Section 3.20.2 Regulatory Setting**

G\_PGE1-06

The Federal section does not accurately describe the jurisdiction of the Federal Energy Regulatory Commission (FERC). FERC regulates construction and abandonment for *interstate* natural gas facilities, which is only a small subset of the pipelines in the study area of the DPEIR. FERC does not license or permit electric transmission facilities.

G\_PGE1-07

The Federal Department of Transportation's Pipeline and Hazardous Materials Safety Administration regulates the design, operation, and maintenance of natural gas pipelines. These regulations are enforced in California by the CPUC through General Order 112E.

The State section should be revised to note that the CPUC has exclusive discretionary permitting authority over the location and design of public utility facilities in the state. Any required relocation of intrastate gas and electric transmission and distribution lines will be subject to the jurisdiction of the CPUC.

## **Section 3.20.4 Environmental Impacts and Mitigation Measures for NTMAs**

G\_PGE1-08

### **Impact UTL-1 (NTMA) Potential Disruption of Utility Services and Modification or Relocation of Utility Infrastructure from Project Construction Activities**

It must be noted that while this impact is considered “potentially significant,” the discussion does not provide sufficient context of the magnitude of potential impacts associated with utility relocations.

Within the 1,600 miles of state/federal jurisdictional levees in northern California, we estimate that PG&E has over 9,000 power poles and 850 transmission towers within 100 feet of levee centerlines and hundreds of gas facilities that parallel or cross jurisdictional levees. The locations of these utilities are critical to the delivery of gas and electric service to customers throughout our service area. It is important to stress that, in the event of levee improvements or Corps certification, relocation of electric and gas facilities may not be necessary in most situations. Electric and gas facilities are allowable encroachments under existing regulations and have co-existed with the levees for decades. (See 33 CFR 208.10(5) and 23 CCR 123). However, if relocation is necessary to accommodate certain levee improvement projects, PG&E must be part of the planning process from the earliest stages. Given the significant urban development in the area of the CVFPP, relocation of an existing line could involve extensive rerouting which would require acquisition of new land rights as well as lengthy permitting processes. Unless PG&E is involved at the earliest planning stages, the rerouting of a utility line could significantly impact the levee improvement project schedule.

A recent example of the importance of early collaboration is the Corps' Marysville Ring Levee Project. While the DWR and Corps were planning on making significant changes to the existing levee, PG&E was simultaneously planning on upgrading its Pease-Marysville line, which is located on the Yuba River levee, to more reliably serve the needs of the city of Marysville. Since PG&E became aware of the project, we have been working collaboratively to understand how the levee improvement proposal would impact our project and potential Corps project alternatives. Due to extensive urban development immediately adjacent to the levee, relocation of PG&E's poles could require substantial rerouting of the existing line, which would increase project costs by over \$10 million dollars, create additional environmental impacts, trigger a variety of environmental permits, and potentially delay electric system reliability upgrades for the City.

G\_PGE1-09

### **Mitigation Measure UTL-1 Verify Utility Locations, Coordinate with Utility Providers, Prepare and Implement a Response Plan and Conduct Worker Training with Respect to Accidental Utility Damage**

Impact UTL-1 mentions utility relocation as potentially significant, yet utility relocation is not mentioned in the title of the impact mitigation measure. PG&E urges that the title of Mitigation Measure UTL-1 be modified to read, “Verify Utility Locations, *Evaluate the Need for Utility Relocation*, Coordinate with Utility Providers, Prepare and Implement a Response Plan and Conduct Worker Training with Respect to Accidental Damage”.

The wording of proposed Mitigation Measure UTL-1 implies that utility relocations can be executed with minimal advance preparation. In fact, utility relocations can require years of planning and environmental review. For example, under CPUC General Order 131-D, non-exempt transmission line relocations greater than 2,000 feet in total length must obtain a Certificate of Public Convenience and Necessity or a Permit to Construct, depending on voltage, from the CPUC, which can take several years. The CPUC's rules provide an exemption for relocations that have already been analyzed as part of another lead agency's CEQA review of a larger project – such as a levee project that results in the need to relocate the transmission line - - provided that the lead agency concludes that the relocation will not result in any significant unavoidable environmental impacts. To accomplish this, the footprint and design of the utility relocation, including structure heights, must be included in the CEQA document for the levee project, and all relocation-related impacts properly evaluated in accordance with CEQA. Failure to do so will render the CPUC exemption inapplicable, which in turn could delay the completion of the levee work pending completion of separate permitting and environmental review by the CPUC. In addition to these delays, failure to properly analyze the environmental effects of utility relocation work that is directly caused by the levee project could subject the lead agency for the levee projects to CEQA-related legal challenges.

Further, utility relocation should be the exception, not the rule, for projects. The mitigation measure should clearly state that utility infrastructure within the project footprint must be evaluated and impacts avoided. Utility infrastructure can co-exist with levee improvements when they do not adversely affect the functioning of the levee.

Finally, it must be noted that determining liability for the costs of relocation is a complex assessment. In some cases, PG&E may hold encroachment permits and other consents from the CVFPB permitting the installation of utility infrastructure that may require PG&E to relocate infrastructure at its expense. However, absent these permits or consents, the priority of the land right within the CVFPB jurisdictional boundary will determine liability for the costs of any necessary relocation. Further, PG&E's CPUC tariffs provide for work requested by others, such as the CVFPB, DWR or Corps, to be paid by the requestor. Regardless of who pays for the relocation, it is a costly and time-consuming process and, as such, should be undertaken only when the risk of leaving the facilities in place warrants the expense of relocation. As a point of reference, PG&E recommends that the CVFPB and DWR review the Caltrans Right-of-Way Manual (Chapter 13 Utility Relocations) which outlines the process jointly developed by the State's major utilities and Caltrans to address utility relocations associated with proposed improvements to California's highway/freeway system.

To address these concerns, and ensure that the DPEIR meets CEQA requirements, PG&E requests the following language be adopted in lieu of the current Mitigation Measure UTL-1:

During the early planning stages of each project, the project proponent will coordinate with applicable regulatory agencies and utility providers to 1) identify all utility facilities within the project area; 2) design the project so as to minimize any utility relocations; and 3) plan for the

orderly implementation of any unavoidable relocation or removal of utility facilities. The project proponent will implement all of the following measures:

- The project proponent will work with the regulatory agencies and affected utilities to avoid utility relocations by co-locating utilities and flood control facilities as allowed under 33 CFR 208.10 (5) and 23 CCR 123.
- If necessary, infrastructure will be removed, relocated to safer locations, or made flood resistant in coordination with all potential service providers known to have, or potentially having, utility infrastructure in the project area.
- If necessary, infrastructure will be flood-proofed (e.g., raised on piers) in coordination with all utility providers known to have infrastructure in the project area.
- Any unavoidable utility relocations will be analyzed in sufficient detail in project-specific CEQA reviews to determine whether they would result in substantial adverse physical effects.
- If necessary, coordinate with utility providers to ensure that the appropriate agencies and affected customers will be notified of any potential interruptions in utility service.
- Before the start of construction, the locations of utilities will be reconfirmed and verified through field surveys and the use of Underground Service Alert services. Any buried utility lines will be clearly marked in areas where construction activities would take place and on the construction specifications before any earth-moving activities begin.
- Before the start of construction, a response plan will be prepared to address the potential for accidental damage to a utility. The plan will identify chain-of-command rules for notifying authorities and appropriate actions and responsibilities to ensure the safety of the public and workers. The construction contractor will conduct worker education and training on responding to situations when utility lines are accidentally damaged. The project proponent and its contractors will implement the response plan during construction activities.
- Utility relocations will be staged and scheduled to minimize interruptions in service, particularly during periods of peak demand.

G\_PGE1-10 **Section 3.20.5 Environmental Impacts and Mitigation Measures for LTMA**

This section makes reference to the impact analysis and mitigation measures for the NTMA section (3.20.4) and thus, the comments included above apply to this section as well.

Please add Lon Maier to the contact list for all future public notices and announcements on the availability of documents that involve the Central Valley Flood Protection Plan, the DPEIR, or other related materials. His contact information is as follows:

Lon Maier  
Pacific Gas & Electric Company  
Land & Environmental Management  
[LCMK@pge.com](mailto:LCMK@pge.com)  
(916) 923-7020

Thank you for the opportunity to provide comments on the CVFPP and DPEIR. We look forward to working with the staff of the CVFPB and DWR, as well as the Corps, on this important planning effort.

Sincerely,

Diane Ross-Leech  
Director - Environmental Policy  
Pacific Gas and Electric Company



## **Pacific Gas and Electric Company**

### ***Response***

#### ***G\_PGE1-01***

DWR agrees with the comment that the CVFPP provides general direction for implementation of improvements to the Central Valley flood management system. DWR further notes that the DPEIR provides a broad, program-level analysis of a plan that will guide future improvements; neither the CVFPP nor the DPEIR includes details regarding site-specific projects, because such details have not yet been formulated. DWR acknowledges that PG&E has provided specific comments on Section 3.20, “Utilities and Service Systems,” of the DPEIR; DWR has provided responses to these specific comments in G\_PGE1-02 through G\_PGE1-10, below.

#### ***G\_PGE1-02***

The comment states an opinion that neither the CVFPP nor the DPEIR adequately addresses the potential environmental impacts of PG&E “facilities and the potential impact of the CVFPP to the generation, transmission and distribution of electric and gas service to PG&E’s 15 million customers.” As stated in Chapter 2.0, “Program Description,” of the DPEIR, it is not possible at this time to specify the number of projects that would be included within the CVFPP, their size and scope, or their locations at any more than a conceptual level. As stated in Section 15146 of the CEQA Guidelines, the specificity of an EIR should correspond to the degree of specificity involved in the proposed activity. Because the DPEIR is a program-level document, it would be infeasible and speculative to attempt inclusion of a detailed analysis of potential impacts specifically related to PG&E’s site-specific utility infrastructure.

Furthermore, as stated in Master Response 23, CEQA does not mandate that a first-tier PEIR identify with certainty the characteristics and impacts of second-tier projects that will be further analyzed before implementation during later stages of the program. Rather, identification of specific impacts is required only at the second-tier stage when specific projects are considered. Similarly, at the first-tier program stage, the environmental effects of potential future projects may be analyzed in general terms, without the level of detail appropriate for second-tier, site-specific review (CEQA Guidelines Sections 15146 and 15152). The CVFPP PEIR satisfies these requirements. Therefore, DWR believes that the level of analysis contained in the DPEIR is appropriate and adequate, and no changes to the DPEIR are required.

***G\_PGE1-03***

The commenter's request for coordination with PG&E is already contained in Mitigation Measure UTL-1 in Section 3.20, "Utilities and Service Systems," of the DPEIR, which states that "Before construction begins, the project proponent and its primary contractors will coordinate with applicable regulatory agencies and utility providers to implement orderly relocation of utilities that need to be removed or relocated" (see page 3.20-15, lines 19–22 of the DPEIR) and "If necessary, infrastructure will be removed, relocated to more appropriate locations, or made flood resistant in coordination with all potential service providers known to have, or potentially having, utility infrastructure in the project area" (see page 3.20-15, lines 34–38 of the DPEIR).

The commenter also provides an opinion, which is not supported by substantial evidence, that "geotechnical mitigation measures can be incorporated into construction design to ensure that utility facilities effectively co-exist with flood protection facilities." DWR believes that relocation of some utilities likely will be necessary to implement some of the projects that would be carried out as part of the CVFPP. Therefore, including geotechnical mitigation would not necessarily allow utility facilities to continue to coexist with flood protection facilities. Furthermore, the commenter does not provide any specifics as to what types of geotechnical mitigation that he believes should be included or examples of how any such "geotechnical mitigation" would avoid or substantially reduce the level of impact.

Finally, the commenter states that relocation of gas and electric facilities away from levees should be considered the exception, not the rule. DWR understands the concerns expressed by PG&E regarding relocation of utilities. However, as stated above, DWR believes that relocation of some utilities likely will be necessary to implement some of the projects that would be carried out as part of the CVFPP. The DPEIR includes feasible mitigation measures that would reduce this impact to a less-than-significant level (e.g., Mitigation Measure UTL-1).

***G\_PGE1-04***

DWR agrees that future collaboration will be required regarding utilities that are located within proposed CVFPP improvements. See also responses to comments G\_PGE1-02 and G\_PGE1-03.

***G\_PGE1-05***

The DPEIR contains a broad, program-level of analysis at a plan level; for additional details, see Master Response 23. Therefore, DWR does not believe that the commenter's suggestion to provide more detailed mapping

and descriptions of PG&E's facilities is either appropriate or feasible because it is not possible at this time to specify the size, scope, and location of projects that would be included within the CVFPP. Thus, DWR believes that the level of detail regarding gas and electric service providers contained in Section 3.20, "Utilities and Service Systems," of the DPEIR is appropriate, and no changes to the DPEIR are required.

**G\_PGE1-06**

The commenter points out a minor error on page 3.20-9 of the DPEIR regarding the description of the responsibilities of the Federal Energy Commission. A correction to this text as requested by the commenter is provided in Chapter 4.0, "Errata," of this FPEIR. This change does not affect the analysis or the conclusions presented in the DPEIR.

**G\_PGE1-07**

DWR understands that individual projects undertaken as part of the CVFPP may be subject to various CPUC requirements. The commenter has suggested including text regarding the responsibilities of the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration in Subsection 3.20.2, "Regulatory Setting," in DPEIR Section 3.20, "Utilities and Service Systems." The text suggested by the commenter has been added as shown in Chapter 4.0, "Errata," of this FPEIR. This change does not affect the analysis or the conclusions presented in the DPEIR.

**G\_PGE1-08**

As stated by the commenter, Impact UTL-1 (NTMA) is already considered to be potentially significant, and feasible mitigation measures that would reduce the impact to a less-than-significant level are included in the DPEIR. For the reasons stated in responses to comments G\_PGE1-02 and G\_PGE1-03, DWR does not believe any changes to the DPEIR are required.

**G\_PGE1-09**

The comment suggests a text change in the title of Mitigation Measure UTL-1 that would require an evaluation of the need to relocate utilities. PG&E requests this change because of its concerns related to relocation of its existing utilities. DWR understands this concern on the part of PG&E; however, there likely will be site-specific instances where utilities will have to be relocated. Clearly, there would be no reason for site-specific project proponents or their contractors to relocate utilities where such relocation is not necessary. The purpose of the environmental analysis contained in the DPEIR is to evaluate significant impacts on the environment; if no relocation would occur, there would be no impact from relocation.

Therefore, the specific text change to the title of Mitigation Measure UTL-1 suggested by the commenter has been considered and is noted; however, no change to the DPEIR text was made

The comment further expresses an opinion, which is not supported by substantial evidence, that Mitigation Measure UTL-1 would allow utility relocation with “minimal advance preparation,” and that as a result, significant environmental impacts could occur that the commenter claims have not been appropriately addressed in the DPEIR. For the reasons stated in response to comment G\_PGE1-02, DWR believes that the requested changes to the DPEIR to “include the footprint and design of the utility relocation, including structure heights” are infeasible and furthermore would be speculative.

The comment further states a request by PG&E that its infrastructure be retained in place, rather than relocated, when CVFPP facilities are constructed. This request was considered and is noted by DWR; however, because it likely will not be feasible to retain all of the existing infrastructure, and for the reasons stated in response to comment G\_PGE1-02, DWR does not believe that including the suggested mitigation that would require retention in place of all PG&E infrastructure is either appropriate or feasible.

The comment proposes deleting all the language contained in Mitigation Measure UTL-1 of the DPEIR and replacing it with detailed suggested language proposed by PG&E. Included as part of the proposed language is a request to “design the project so as to minimize any utility relocations.” The primary purpose of the CVFPP is flood control, and as previously stated above, DWR anticipates that site-specific utility relocations will be required. Therefore, the proposed language is neither appropriate nor feasible.

The comment requests new language to “plan for the orderly implementation of any unavoidable relocation or removal of utility facilities.” The existing language of Mitigation Measure UTL-1 already states that “the project proponent and its primary contractors will coordinate with applicable regulatory agencies and utility providers to implement orderly relocation of utilities that need to be removed or relocated”; therefore, the change requested by the commenter is unnecessary and no change to the DPEIR text was made.

The first suggested bullet point requests that DWR work with utility providers to avoid removal of existing utilities. The primary purpose of the CVFPP is flood control, and as stated in existing text of Mitigation Measure UTL-1, many of the Board’s encroachment permits for utility

facilities contain conditions requiring the owner to remove and/or relocate the facility at the owner's expense if the utility interferes with the operations or integrity of the existing flood facility or future project. If necessary, infrastructure will be removed, relocated to more appropriate locations, or made flood resistant in coordination with all potential service providers known to have, or potentially having, utility infrastructure in the project area. Therefore, the proposed language is neither appropriate nor feasible.

The second and third suggested bullet points are already contained within the existing text of Mitigation Measure UTL-1; therefore, no changes to the DPEIR text were made.

The fourth bullet point asks that language be included to require that "any unavoidable utility relocations will be analyzed in sufficient detail in project-specific CEQA reviews to determine whether they would result in substantial adverse physical effects." DWR is aware that future project-specific CEQA reviews may be required, and such language is already contained in numerous places throughout the DPEIR. To include the requested language as part of every mitigation measure in the DPEIR would be redundant and unnecessary; therefore, no changes to the DPEIR text were made. See also response to comment G\_PGE1-02.

The remaining four bullet points contain additional requested language that is already included within the existing text of Mitigation Measure UTL-1; therefore, no changes to the DPEIR were made.

**G\_PGE1-10**

See responses to comments G\_PGE1-02, G\_PGE1-03, G\_PGE1-08, and G\_PGE1-09.

# G\_RIAL1



February 8, 2012

Ms. Nancy Moricz  
Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento, CA 95821

RECEIVED

FEB 14 2012

Subject: Comments on Draft State Plan of Flood Control

Dear Ms. Moricz:

We previously provided comments regarding the Draft State Plan of Flood Control Descriptive Document in May 2010. Our understanding is that Descriptive Document was meant to be an inventory and description of the existing flood control works, lands, programs, plans, conditions, and mode of operations and maintenance (O&M) for the State-Federal flood protection system in the Central Valley. The Descriptive Document was to be used as a basis for the State Plan of Flood Control. Our comments on the Descriptive Document were specific to Paradise Cut and its role as a flood bypass in the southern San Joaquin Delta. A copy of this correspondence is provided as an attachment to this letter (Attachment 1).

We now wish to provide additional comments regarding the recently issued Draft State Plan of Flood Control. We have specific comments that adversely affect our property rights and that we believe our contrary to existing State plans and policies.

As indicated in our May 2010 correspondence, we are the master developers of the 4,800 acres River Islands master planned community within the City of Lathrop California. The site is located on the Stewart Tract within the southern portion of legal Delta; please see Attachment 2. As the sole property owners of the site, we also sit as the board of directors for Reclamation District 2062, which is the local levee management agency for the Stewart Tract. Adjacent to the Stewart Tract is Paradise Cut, a State designated flood bypass that includes Paradise Weir at the head of Paradise Cut and the San Joaquin River. We also own all lands within Paradise Cut north of the Union Pacific Railroad. Paradise Cut serves as a bypass to divert flood waters away from urban areas downstream of the Paradise Weir.

It is important to note that the River Islands project site is wholly located within the Secondary Zone of the Delta, where urban development is allowed under the Delta Protection Act of 1992. The site is also unique to other sites within the Delta due to its location, elevation, soils conditions and extensive entitlements:



**THE CAMBAY GROUP, INC.**

73 West Stewart Road, Lathrop CA 95330 \* Tel 209.879.7900 \* Fax 209.879.7928

G\_RIAL1-01

G\_RIAL1-02

G\_RIAL1-03

G\_RIAL1-04

- Flood Zone Designation: 900 acres of Phase 1 of the project site is already protected by 300 foot wide “superlevees” and is protected against 200 year flooding event (as designated by DWR) and is designated as an “X” zone by FEMA (outside the 100 year flood plain). Please see Attachment 3 for greater detail of this area. The balance of the project has an approved by a Conditional Letter of Map Revision (CLOMR) by FEMA to provide a minimum of 100 year protection for the balance of the project. River Islands intends to extend its superlevee system for the balance of the project, meeting a minimum 200 year level of protection as mandated by the State. These improvements will be completed prior to any development in the affected area.

G\_RIAL1-05

- Soil and Drainage Characteristics: the project site underlying soils that are characteristic of areas outside the interior Delta (sandy/loam/clay) and not organic peat soils. As a result, it is not subject to subsidence like many interior Delta islands and the soils drain well. Also, the site is 8 to 12 feet above sea level on average and the current levee system is not impacted by normal river levels like many interior levee systems.

G\_RIAL1-06

- Habitat Quality: River Islands is proposing extensive eco-restoration of the 900 acre Paradise Cut, including preservation, restoration and creation of habitat for the federally listed Riparian Brush Rabbit; one of few such areas identified in the State. The project also seeks to provide extensive waterside levee vegetation for the creation and preservation of Shaded Riverine Aquatic Habitat (SRAH) along the levee slopes on the San Joaquin River and Old River.

G\_RIAL1-07

- Development Potential and Economic Viability: the project already has extensive entitlements for development and is considered an economic boon to the City of Lathrop and the region at large. The project is multi-faceted, in that it will provide much more than just housing. The project will offer extensive office and retail opportunities, including up to 17,000 new jobs with over 4.5 million square feet of space. The entire Town Center (a mixed-use “downtown” area) and approximately two-thirds of the proposed Employment Center are located within Phase 1 of the project area and is already flood protected. Along with available infrastructure, these sites can be readily available for development in a short period of time once market conditions improve.

G\_RIAL1-08

- Availability of Infrastructure: the project site has already completed numerous off-site and on-site infrastructure facilities, including water and sewer capacity, pipelines, recycled water storage and disposal facilities, electrical facilities and initial access to the site. The first two internal lakes (approximately 30 acres), along with initial grading, flood protection and an 8 acre bio-retention area for storm drainage has already been constructed for Phase 1.

G\_RIAL1-09

- Land Use and Zoning Designations: The project site is covered by the Lathrop General Plan and the adopted West Lathrop Specific Plan, which provides the land use

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Re: Comments on Draft Plan of Flood Control  
February 8, 2012  
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designations and zoning respectively. All necessary urban land uses for the property have already been designated by these documents.

In particular, we are concerned about the bypass identified in Figure 3-2 on page 3-6. This figure indicates that all of Stewart Tract and Paradise Cut are suggested to be included in an expanded flood bypass (shown in yellow on Figure 3-2). This is inconsistent with other State policies and plans, including the current Draft Delta Plan of the Delta Stewardship Council. As indicated above, all areas north of Paradise Cut on the Stewart Tract are already fully entitled for urban development and have significant new infrastructure in place for that development. Figure 3-2 should be modified as shown in Attachment 4 provided in this letter, which would propose existing Paradise Cut and areas to the south of Paradise Cut be designated for further bypass improvements, but exclude the already approved developable areas of the Stewart Tract from these improvements.

Should you have any questions regarding this letter, please do not hesitate to call me at (209) 879-7900 or email me at [sdelloso@cambaygroup.com](mailto:sdelloso@cambaygroup.com).

Sincerely,



Susan Dell'Osso  
Project Director  
River Islands at Lathrop

Enclosed:     *Attachment 1: March 1, 2010 Correspondence*  
                  *Attachment 2: River Islands/Stewart Tract Locational Map*  
                  *Attachment 3: 200 Year Flood Protected Area*  
                  *Attachment 4: Revised Figure 3-2*

Copy to:     Scott Woodland, State of Department of Water Resources  
                  Kathleen A. Dadey, U.S. Army Corps of Engineers, Sacramento District  
                  Ben Carter, President, Central Valley Flood Protection Board  
                  Jay Punia, Executive Officer, Central Valley Flood Protection Board  
                  Ric Reinhardt, MBK Engineers  
                  Monty Schmitt, Natural Resources Defense Council  
                  John Cain, American Rivers  
                  Alicia C. Guerra, Briscoe Ivester & Bazel LLP  
                  Cary Keaten, City Manager, City of Lathrop  
                  Glenn Gebhardt, Director of Community Development, City of Lathrop  
                  Lisa Freilicher, General Counsel



ATTACHMENT 1



March 1, 2010

Central Valley Flood Planning Office  
Attn: Roger Lee  
P.O. Box 942836  
Sacramento, CA 94236

Subject: Draft State Plan of Flood Control Descriptive Document

Dear Mr. Lee:

G\_RIAL1-12

We are providing you the following comments regarding the Draft State Plan of Flood Control Descriptive Document ("Document"). Our understanding is that the document is meant to be an inventory and description of the existing flood control works, lands, programs, plans, conditions, and mode of operations and maintenance (O&M) for the State-Federal flood protection system in the Central Valley.

G\_RIAL1-13

We are the master developers of the River Islands project; a 4,800 acre master planned community within the City of Lathrop, California in which I am the project director. River Islands is surrounded by 12 miles of project levees on the Stewart Tract located within the southern portion of legal Delta; please see Exhibit 1 (attached). As the sole property owners of the site, we also sit as the board of directors for Reclamation District 2062, which is the local levee management agency for the Stewart Tract. Adjacent to the Stewart Tract is Paradise Cut, a State designated flood bypass that includes Paradise Weir at the head of Paradise Cut and the San Joaquin River. We also own all lands within Paradise Cut north of the Union Pacific Railroad. Paradise Cut was constructed under U.S. Army Corps authorization in the 1950's to divert flood waters away from urban areas downstream of the Paradise Weir.

G\_RIAL1-14

The draft Document refers to Paradise Cut as a "distributary" of the San Joaquin River. While this is technically true (Paradise Cut receives flows from the San Joaquin River and does not rejoin it), Paradise Cut should be described and listed a flood by-pass (facility) under the draft Document. The language below is excerpted from the draft Document:

**Paradise Cut**

SPFC facilities along Paradise Cut include levees on both sides of the channel from the San Joaquin River to the confluence with the Old River. The design channel capacity is 15,000 cfs based on the O&M manuals. The right-bank levee (see O&M Manual SJR9) is 5.9 miles long. This levee protects Stewart Tract and



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Letter to Central Valley Flood Association  
Re: Comments on Draft Descriptive Document for the Plan of Flood Control  
March 1, 2010  
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the developing area of Lathrop. The left-bank levee (see O&M Manual SJR10) is 6.2 miles long. The levees are maintained by RD 2058 and RD 2062.”

We suggest that the language on page 3-71 of the draft Document be modified to reflect the fact that Paradise Cut is also a flood bypass facility and to acknowledge the Paradise Weir:

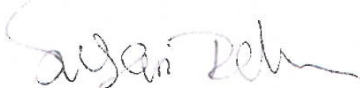
**Paradise Cut**

“SPFC facilities along Paradise Cut include levees on both sides of the channel from the San Joaquin River to the confluence with the Old River, along with the Paradise Weir at head of Paradise Cut and the San Joaquin River. Paradise Weir is an existing rock weir that separates Paradise Cut from the San Joaquin River. The weir allows low flows to remain in the San Joaquin River and high flows to be diverted into Paradise Cut. Flood waters flow through Paradise Cut into Grant Line Canal which joins with Clifton Court Forebay. In conjunction with Paradise Weir, Paradise Cut is considered a flood-bypass for the San Joaquin River. The original design channel capacity is 15,000 cfs based on the O&M manuals. The right-bank levee (see O&M Manual SJR9) is 5.9 miles long. This levee protects Stewart Tract and the developing area of the City of Lathrop from a 50-year (1-in-50 Annual Exceedance Probability). The left-bank levee (see O&M Manual SJR10) is 6.2 miles long. The left-bank levee is maintained by RD 2058 and the right-bank levee by RD 2062.”

G\_RIAL1-15

Additionally, Detail 7 (figure in Attachment A - State Plan of Flood Control Index and Location Maps) should be updated to reflect the location of Paradise Cut and Paradise Weir as SPFC facilities. Should you have any questions regarding this letter, please do not hesitate to call me at (209) 879-7900 or email me at [sdelloso@cambaygroup.com](mailto:sdelloso@cambaygroup.com).

Sincerely,



Susan Dell'Osso  
Project Director  
River Islands at Lathrop

Enclosed: *Exhibit 1: River Islands Locational Map*

Copy to: Scott Woodland, State of Department of Water Resources  
Kathleen A. Dadey, U.S. Army Corps of Engineers, Sacramento District  
Ben Carter, President, Central Valley Flood Protection Board  
Jay Punia, Executive Officer, Central Valley Flood Protection Board

Letter to Central Valley Flood Association

Re: Comments on Draft Descriptive Document for the Plan of Flood Control

March 1, 2010

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Ric Reinhardt, MBK Engineers  
Monty Schmitt, Natural Resources Defense Council  
Richard Roos-Collins, Natural Heritage Institute  
Alicia C. Guerra, Briscoe Ivester & Bazel LLP  
Mark Connelly, San Joaquin County Public Works  
Cary Keaten, City Manager, City of Lathrop

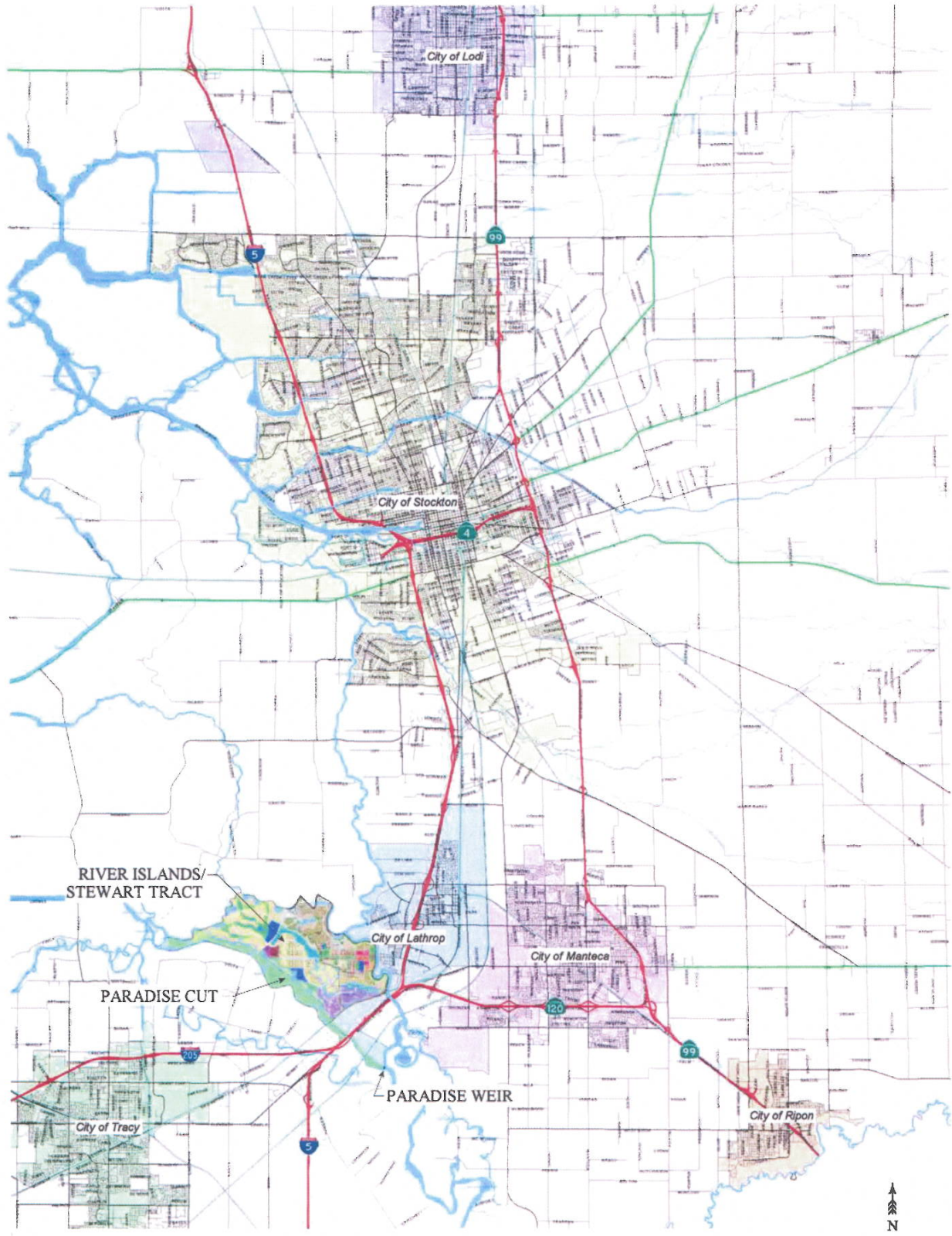
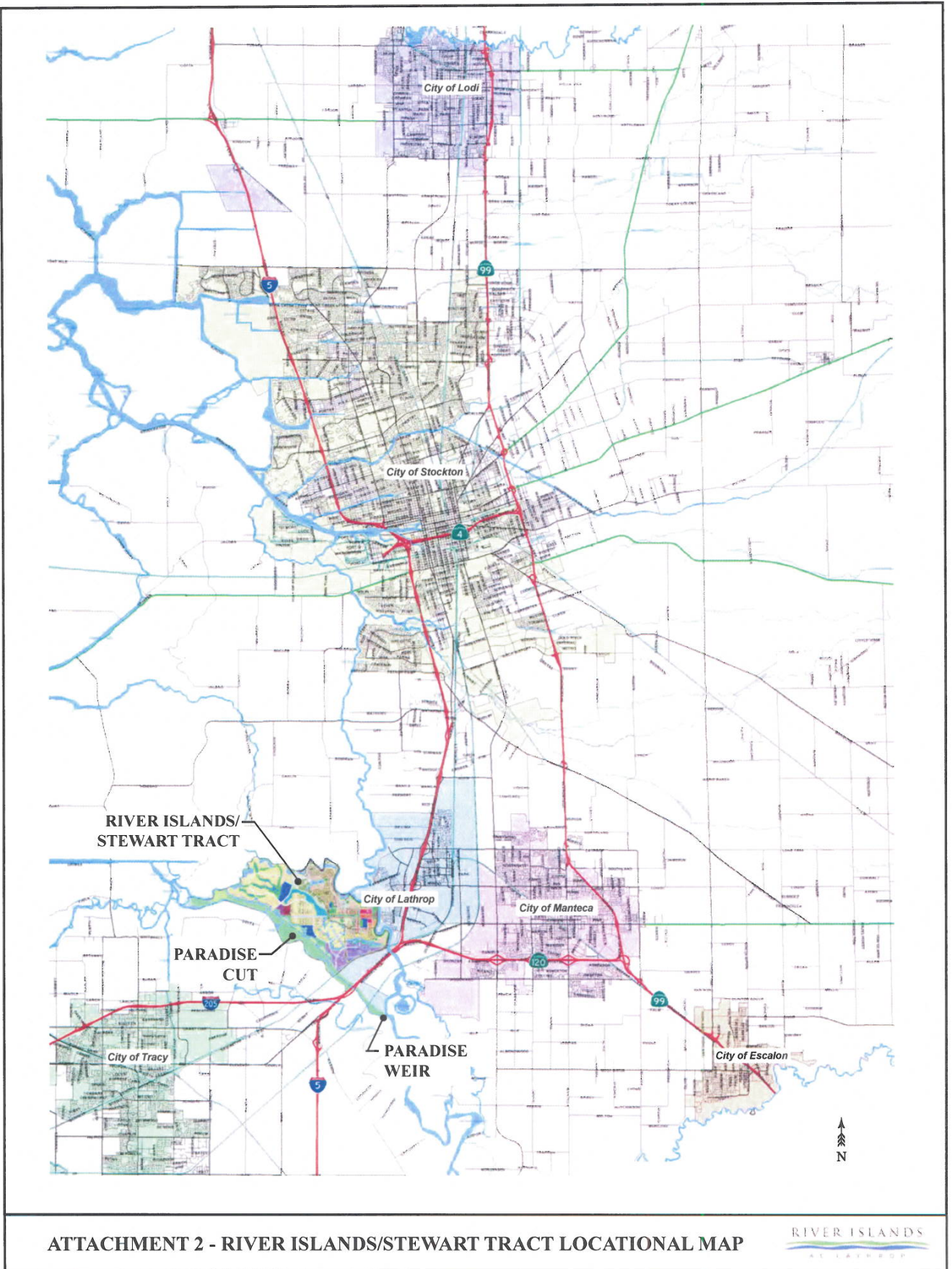


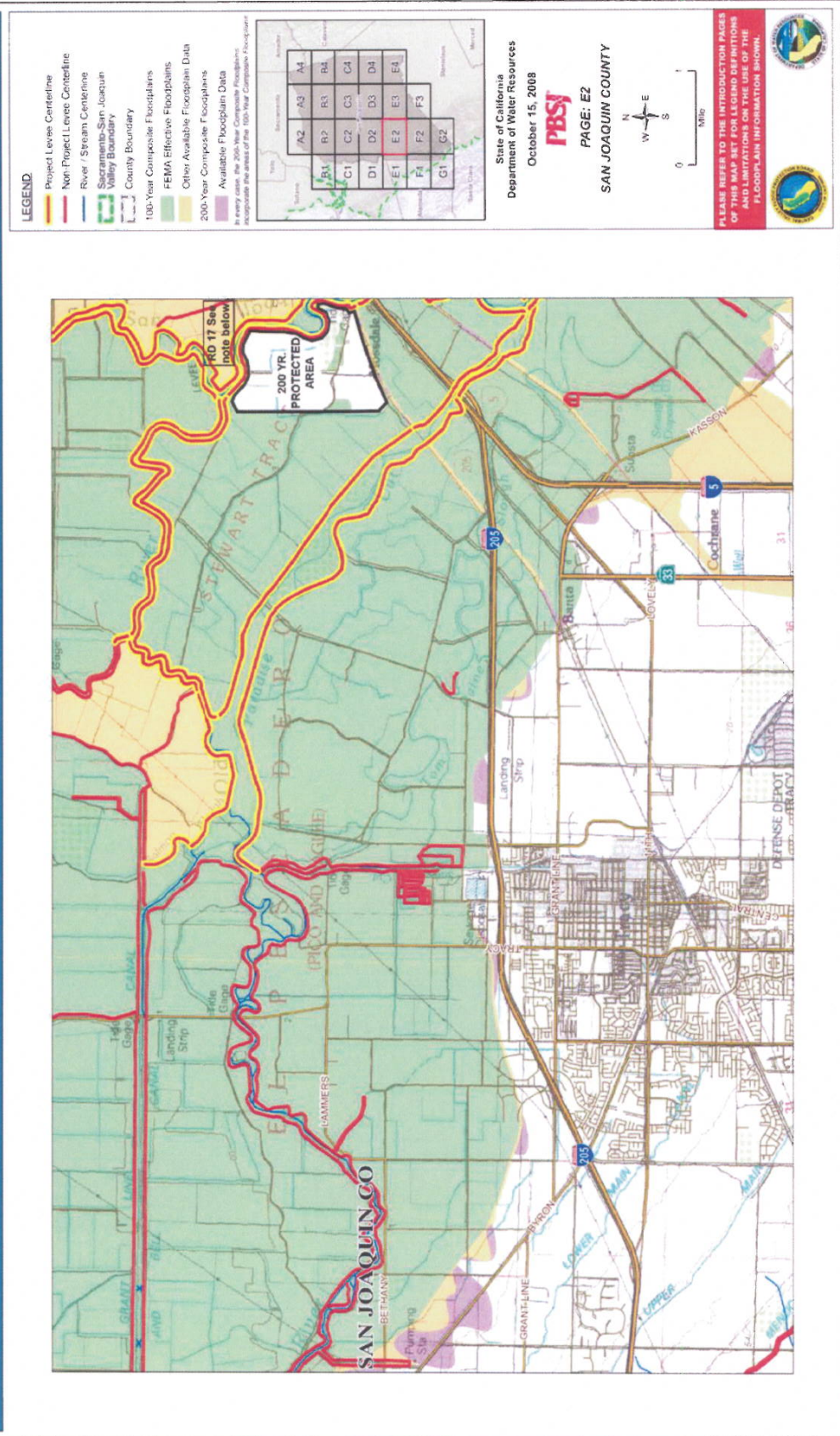
EXHIBIT 1 - RIVER ISLANDS/STEWART TRACT LOCATIONAL MAP



ATTACHMENT 2 - RIVER ISLANDS/STEWART TRACT LOCATIONAL MAP

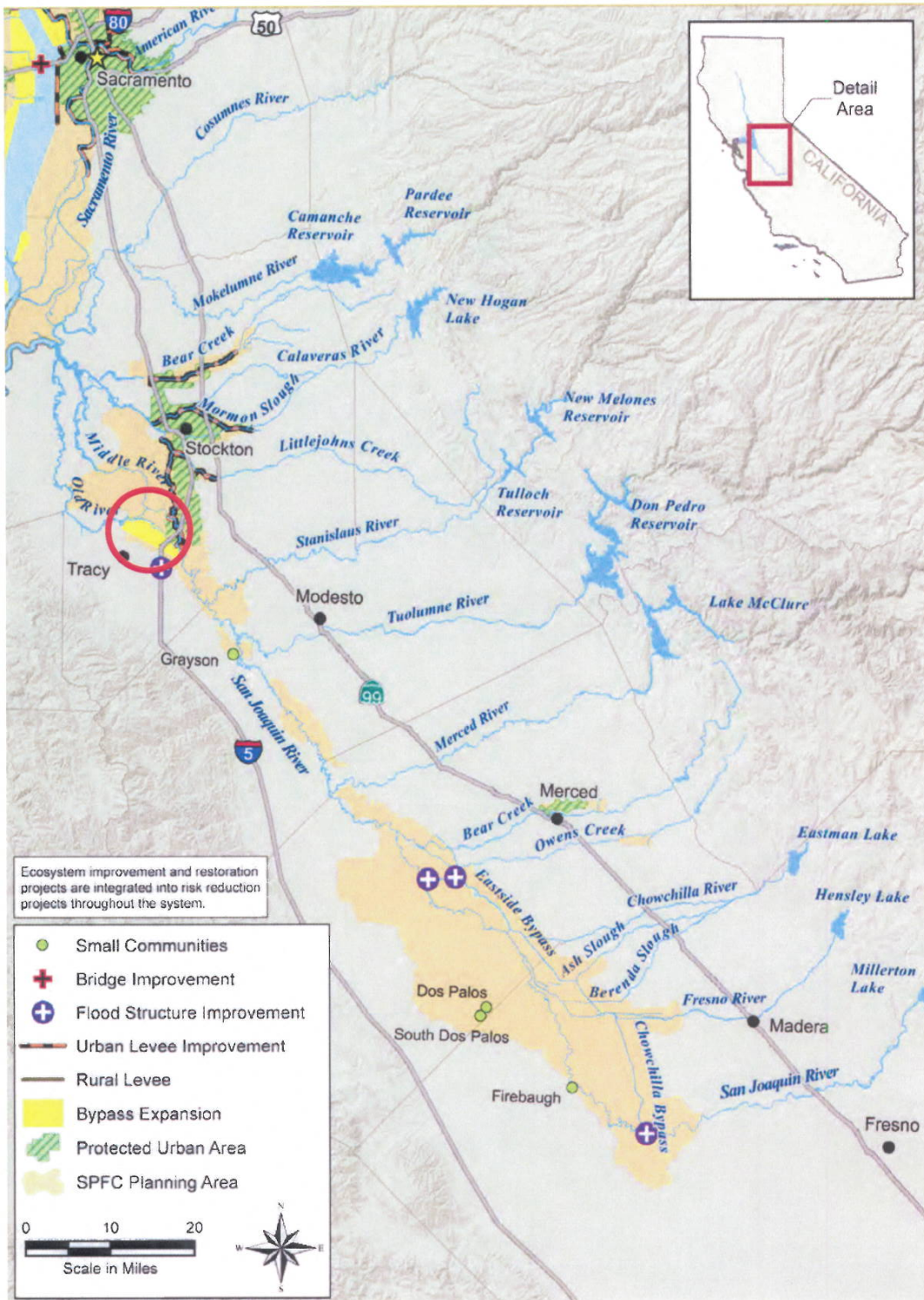


Preliminary 100- and 200-Year Floodplains Based Upon Best Available Data



River Islands at Lathrop  
200 Year Flood Protected Area

ATTACHMENT 4



Key: SPFC = State Plan of Flood Control

Figure 3-2. State Systemwide Investment Approach – San Joaquin River Basin Major Capital Improvements

**River Islands at Lathrop, Susan Dell’Osso, Project Director**

***Response***

***G\_RIAL1-01***

The commenter supplied a copy of previous comments submitted on March 1, 2010, on the Draft *State Plan of Flood Control Descriptive Document*. The comment is noted.

***G\_RIAL1-02***

The commenter supplied information relating to the location and ownership of the River Islands master planned community within the Stewart Tract and the adjacent Paradise Cut. The comment is noted.

***G\_RIAL1-03***

The commenter supplied additional information related to the River Islands project site. The comment is noted.

***G\_RIAL1-04***

The commenter supplied additional information related to the River Islands project site’s flood zone designation. The comment is noted.

***G\_RIAL1-05***

The commenter supplied additional information related to the River Islands project site’s soil and drainage characteristics. The comment is noted.

***G\_RIAL1-06***

The commenter supplied additional information related to the River Islands project site’s habitat quality. The comment is noted.

***G\_RIAL1-07***

The commenter supplied additional information related to the River Islands project site’s development potential and economic viability. The comment is noted.

***G\_RIAL1-08***

The commenter supplied additional information related to the River Islands project site availability of infrastructure. The comment is noted.

***G\_RIAL1-09***

The commenter supplied additional information related to the River Islands project site’s land use and zoning designations. The comment is noted.



**G\_RIAL1-10**

As stated in Master Response 1, the CVFPP is a high-level document that describes the State's vision for a sustainable flood management system in the Central Valley. The SSIA is a responsible and balanced investment approach to achieve this vision. The CVFPP and its PEIR do not permit any specific actions to move forward that would be subject to further evaluation under CEQA. The CVFPP does not provide detailed project descriptions or funding assurances, nor does it preclude any future actions that could contribute to flood management goals.

Specific dimensions, capacities, and alignments for expanded and new bypasses have not been determined as part of the preliminary analyses conducted for the 2012 CVFPP. The analyses contained in the 2012 CVFPP are intended to be conceptual only; they were included as a basis for a program-level analysis that would allow broad comparisons of various flood management options. Potential locations and preliminary sizes described in the plan were identified using information obtained from previous studies and through discussions with local agencies and stakeholders.

Considerable additional work will be required before the bypass projects proposed in the plan are approved and implemented. Details about the dimensions, capacities, and alignments of expanded and new bypasses will be refined during post-adoption implementation activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these activities are conducted, the feasibility of proposed bypass elements will be evaluated and opportunities for public engagement and input will become available.

**G\_RIAL1-11**

The commenter supplied contact information. The comment is noted.

**G\_RIAL1-12**

The commenter supplied a copy of previous comments submitted on March 1, 2010, on the Draft *State Plan of Flood Control Descriptive Document*. The comment is noted.

**G\_RIAL1-13**

The commenter supplied a copy of previous comments submitted on March 1, 2010, on the Draft *State Plan of Flood Control Descriptive Document*. The comment is noted.

***G\_RIAL1-14***

The commenter supplied a copy of previous comments submitted on March 1, 2010, on the Draft *State Plan of Flood Control Descriptive Document*. The comment is noted.

***G\_RIAL1-15***

The commenter supplied a copy of previous comments submitted on March 1, 2010, on the Draft *State Plan of Flood Control Descriptive Document*. The comment is noted.



## Moricz, Nancy

---

**From:** Ramon Batista [RBatista@CambayGroup.com]  
**Sent:** Friday, April 20, 2012 1:50 PM  
**To:** Cvfpb\_Comments  
**Cc:** Susan Dellosso; Ric Reinhardt; Glenn Gebhardt; Stephen Salvatore; Punia, Jay; Marino, Len  
**Subject:** Additional Comments on Draft Flood Plan - CVFPB  
**Attachments:** April 20, 2012 Delta Plan Comments - Spreadsheet.xlsx

**Importance:** High

G\_RIAL2-01

Ms. Nancy Moricz

I am providing the attached additional comments of Califia, LLC (River Islands) on behalf of Susan Dell'Osso, Project Director, regarding the Draft State Plan of Flood Control ("Draft Flood Plan") and PEIR. We previously provided comments on the Draft Flood Plan in February 2012 and on the previous Descriptive Document in May 2010. Due to the large size of the Draft Flood Plan and the extensive appendices, it has taken some time to review the documentation and complete our comments. The attached comments, provided on the form provided by the CVFPB staff, provides additional detail regarding the Draft Flood Plan. We would like to append our previous comments to include the comments listed below as part of the administrative record.

Should you have any questions regarding these comments, please contact me at the phone number or email address shown below.

**Ramon Batista**  
*Director of Planning and Entitlements*  
**River Islands at Lathrop**

73 West Stewart Road  
Lathrop, CA 95330  
Phone: (209) 879-7900  
Mobile: (209) 495-2871  
Fax: (209) 879-7928  
[rbatista@CambayGroup.com](mailto:rbatista@CambayGroup.com)  
[www.riverislands.com](http://www.riverislands.com)

Comment No.	Commentor	Commentor Agency	Contact Email	Document	Chapter/Section	Page No.	Comment	Proposed Modification
1	Susan Dell'Oso, Project Director	Califia, LLC dba River Islands at Lathrop	sdelloso@cambaygroup.com	Draft Delta Plan	General Comment		We believe that the BDCP, Delta Plan and Delta Conservation Plan should be consistent with regards to land use policy. Specifically, these plans should all include a policy that the plans will not usurp private property rights and shall respect the vested rights given by prior local land use approvals. A policy that definitively states that notwithstanding any other policy provided in the Delta Plan, that in no way should the Delta Plan abrogate existing vested rights	Provide a policy statement as follows: "Notwithstanding any other policy provided in this Delta Plan, in no way shall the Delta Plan abrogate any existing vested property right of any property affected by the Plan."
2	Susan Dell'Oso, Project Director	Califia, LLC dba River Islands at Lathrop	sdelloso@cambaygroup.com	Draft Delta Plan	General Comment		The plan does not define "200-year flood protection" that is required for urban areas.	If a clear definition for 200 year flood protection cannot be provided, then the Plan should include a direct statement that development will not be delayed pending specific information. It should be up to the local agency to determine the 200 year event. In areas where specific 200 year modeling has been done, as in the Lower San Joaquin River area, the Plan should include a statement that the existing modeling is sufficient for use in determining the 200 year event.
3	Susan Dell'Oso, Project Director	Califia, LLC dba River Islands at Lathrop	sdelloso@cambaygroup.com	Draft Delta Plan	General Comment		The plan does not mention urbanizing areas where development is occurring that has been previously approved by local governments.	The definition and requirement for 200-year flood protection should extend to urbanizing areas as well as established urban areas.
4	Susan Dell'Oso, Project Director	Califia, LLC dba River Islands at Lathrop	sdelloso@cambaygroup.com	Draft Delta Plan	General Comment		All references to the Paradise Cut flood bypass should indicate its location south of Stewart Tract.	(Same as comment).
5	Susan Dell'Oso, Project Director	Califia, LLC dba River Islands at Lathrop	sdelloso@cambaygroup.com	Draft Delta Plan	General Comment		The plan should acknowledge that Califia funded and owns the HEC-RAS flood model utilized by the Plan that should be used in establishing the 200 year flood event.	(Same as comment).
6	Susan Dell'Oso, Project Director	Califia, LLC dba River Islands at Lathrop	sdelloso@cambaygroup.com	Draft Delta Plan	General Comment		We believe that the attachments and appendices to the Delta Plan should illustrative only since they are so voluminous and detailed, that there has not been adequate time to review them completely.	(Same as comment).
7	Susan Dell'Oso, Project Director	Califia, LLC dba River Islands at Lathrop	sdelloso@cambaygroup.com	Draft Delta Plan	General Comment		The plan should acknowledge that approved development within the Secondary Zone of the Delta should not be affected by the Plan's policies, other than the existing requirement to provide 200-year flood protection.	(Same as comment).
8	Susan Dell'Oso, Project Director	Califia, LLC dba River Islands at Lathrop	sdelloso@cambaygroup.com	Draft Delta Plan	Section 2.8	2-29	Section 2-8 includes a reference to "deep flood plains" as areas inundate three feet or greater. The section should clearly state that the Plan does not intend to create a new definition and that the term is being used in the context of this section only.	(Same as comment).
9	Susan Dell'Oso, Project Director	Califia, LLC dba River Islands at Lathrop	sdelloso@cambaygroup.com	Draft Delta Plan	Section 3.2	3-6	Figure 3-2 incorrectly shows the Stewart Tract (area north of Paradise Cut) as part of an expanded flood bypass. Previous correspondence from Califia includes an updated figure that corrects this error.	Insert updated Figure 3-2 as previously provided.

G\_RIAL2-02

G\_RIAL2-03

G\_RIAL2-04

G\_RIAL2-05

G\_RIAL2-06

G\_RIAL2-07

G\_RIAL2-08

G\_RIAL2-09

G\_RIAL2-10

G\_RIAL2-11

10	Susan Dell'Osso, Project Director	Califfa, LLC dba River Islands at Lathrop	sdelloso@cambaygroup.com	Draft Delta Plan	Section 3.5.2	3-15	<p>We are pleased to see the language regarding the evaluation of a Lower San Joaquin River Bypass and the potential for the State to purchase easements from willing sellers to accommodate the bypass. The section should be expanded to describe the current effort between Califfa, LLC, NRDC, Natural Heritage Institute, DeltaKeeper, American Rivers and others to move this project forward. The description of the project should also indicate the specific location within the Pescadero Tract as an expansion of the existing Paradise Cut bypass.</p>	<p>Include language in this section to describe the current effort between Califfa, LLC, NRDC, Natural Heritage Institute, DeltaKeeper, American Rivers and others to move this project forward. The description of the project should also indicate the specific location within the Pescadero Tract as an expansion of the existing Paradise Cut bypass.</p>
G_RIAL2-12	Susan Dell'Osso, Project Director	Califfa, LLC dba River Islands at Lathrop	sdelloso@cambaygroup.com	Draft Delta Plan	Section 3.15	3-44	<p>The text box on this page titled, "Limiting Growth in Central Valley Floodplains" indicates that "urban flood risk reductions under the SSIA will be limited to areas protected by facilities of the State Plan of Flood Control." It should be noted that Paradise Cut, the only existing flood bypass in the San Joaquin River system is part of the facilities in the State Plan of Flood Control and is proposed for expansion with the Lower San Joaquin River bypass improvements.</p>	<p>Included language that Paradise Cut, the only existing flood bypass in the San Joaquin River system is part of the facilities in the State Plan of Flood Control and is proposed for expansion with the Lower San Joaquin River bypass improvements.</p>
G_RIAL2-13	Susan Dell'Osso, Project Director	Califfa, LLC dba River Islands at Lathrop	sdelloso@cambaygroup.com	Draft Delta Plan	Section 4.4.2	4-21	<p>Stewart Tract and Pescadero Tract should be shown as part of Lower San Joaquin River region and not Delta-South within Figure 4-3. The Stewart Tract in particular is an urban area with vested, existing entitlements within the Secondary Zone of the Delta. Paradise Cut is the key existing facility of the State Plan of Flood Control to alleviate flooding on the San Joaquin River in the region, and future expansions of the bypass will include areas of the Pescadero Tract.</p>	<p>Update Figure 4-3 to show Stewart Tract and Pescadero Tract as part of the Lower San Joaquin River region.</p>
G_RIAL2-14	Susan Dell'Osso, Project Director	Califfa, LLC dba River Islands at Lathrop	sdelloso@cambaygroup.com	DPEIR	Section 5.2.3	5-6 and 5-7	<p>This section states that the Modified SSIA Alternative, "also includes expanding the Yolo Bypass and widening Fremont Weir, but does not include any of the other bypass expansions and related improvements contained in the proposed program. This alternative presents a less construction-intensive alternative that addresses only the most critical stressors on public safety, operations and maintenance, and ecosystem function, while minimizing potential adverse environmental effects." We believe that this statement is erroneous and downplays the importance of a flood bypass for the San Joaquin River watershed. The existing Paradise Cut bypass, the only bypass in the San Joaquin River watershed can be improved/expanded to help alleviate potential flood damage to a large portion of the cities of Stockton, Lathrop, and Manteca and protect vital public facilities located near Stockton, such as San Joaquin General Hospital, the San Joaquin County Jail and Veteran's Administration Facility.</p>	<p>This alternative should be modified to include improvement/expansion of Paradise Cut and the Paradise Weir, in addition to the planned improvements to the Yolo Bypass and Fremont Weir.</p>

## River Islands at Lathrop

### **Response**

#### **G\_RIAL2-01**

The commenter notes that other comments on the project were submitted by River Islands at Lathrop in February 2012. Please see responses to comments G\_RIAL1-01 through G\_RIAL1-15. Although the commenter uses the term “Draft Delta Plan” throughout this comment letter, the commenter is clearly referencing the CVFPP and not the Delta Plan being prepared by the Delta Stewardship Council.

#### **G\_RIAL2-02**

The specific policy statement recommended by the commenter has been considered and is noted; however, no change to the CVFPP text was made. For additional information about how the CVFPP integrates into other large plans, see Master Response 18.

See Master Response 5 for information on urban compliance with SB 5.

#### **G\_RIAL2-03**

As stated in Master Response 5, DWR developed the *Draft Urban Level of Flood Protection Criteria* (April 2012) to assist cities and counties in making findings related to the urban level of flood protection. DWR also developed the *Urban Levee Design Criteria* (May 2012), which contains the engineering criteria that apply when cities and counties use levees and floodwalls to provide an urban level of flood protection. Those criteria are incorporated by reference into the *Draft Urban Level of Flood Protection Criteria*.

#### **G\_RIAL2-04**

See response to comment G\_RIAL2-03.

#### **G\_RIAL2-05**

The specific text change has been considered and is noted; however, no change to the CVFPP text was made.

#### **G\_RIAL2-06**

The recommended text change has been considered and is noted; however, no change to the CVFPP text was made.

**G\_RIAL2-07**

As stated in Master Response 22, the CVFPP (SSIA) is a complex integrated flood management plan covering a large geographic area. The Legislature required DWR to prepare the first public draft CVFPP by January 1, 2012, for adoption by the Board by July 1, 2012, or as such other date as may be provided by the Legislature. DWR believes that the CVFPP and DPEIR speak for themselves regarding the magnitude of the required effort in light of these statutory deadlines, and appreciates the compliments from a number of commenters in that regard.

The Public Draft CVFPP was released, on time, on December 30, 2011. Several of the attached supporting documents, specifically the *State Plan of Flood Control Descriptive Document* (November 2010) and the *Flood Control System Status Report* (December 2011), were published before the Public Draft CVFPP and informed its development. Most CVFPP attachments were released with the public draft or in early February 2012; exceptions include the “Flood Damage Analysis,” “Riverine Channel Evaluations,” “Cost Estimates,” and “Reservoir Analysis” attachments, which were released between mid-February and the publication of the DPEIR.

**G\_RIAL2-08**

The recommended text change has been considered and is noted; however, no change to the CVFPP text was made. For additional details, see responses to comments G\_RIAL2-03.

**G\_RIAL2-09**

The recommended text change has been considered and is noted; however, no change to the CVFPP text was made.

**G\_RIAL2-10**

The recommended graphics change has been considered and is noted; however, no change to the CVFPP figure was made.

**G\_RIAL2-11**

The level of detail for the description of the lower San Joaquin bypass is consistent with conceptual nature of the CVFPP. Please see page 3-15 of the CVFPP.

**G\_RIAL2-12**

The recommended text change has been considered and is noted; however, no change to the CVFPP text was made. For additional details, see responses to comments G\_RIAL2-03.

***G\_RIAL2-13***

The recommended graphics change has been considered and is noted; however, no change to the CVFPP figure was made.

***G\_RIAL2-14***

As stated in Master Response 9, which describes issues specific to the SSIA, three preliminary approaches were used to explore a range of potential physical changes to the existing flood management system and help highlight needed policies or other management actions: Achieve SPFC Design Flow Capacity, Protect High-Risk Communities, and Enhance Flood System Capacity. Evaluating these preliminary approaches provided information on their costs, benefits, and overall effectiveness. None of the three preliminary approaches were found to fully satisfy the legislative requirements and CVFPP goals in a cost-effective manner. However, the most promising elements of each were combined to formulate the State's preferred approach—the SSIA. The CVFPP and accompanying attachments provide additional details about the formulation and screening of elements included in the SSIA.

The SSIA was formulated by assembling the most promising, affordable, and timely elements of the three preliminary approaches to best meet legislative requirements and identified CVFPP goals. The SSIA reflects a balanced and fiscally responsible approach, which will be developed further as DWR completes more detailed studies and designs for site-specific capital improvements and develops other, systemwide flood improvement projects. Specific project features ultimately implemented for the SSIA will depend on a host of factors. These factors include the results of detailed project feasibility studies; designs and cost estimates; environmental benefits and impacts; interaction with other local projects and system improvements; participation by local, State, and federal agencies in project implementation; and changing physical, institutional, and economic conditions.

In addition, see Master Response 25. “There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.” CEQA Guidelines Section 15126.6(a). The rule of reason “requires the EIR to set forth only those alternatives necessary to permit a reasoned choice” and to “examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project.” CEQA Guidelines Section 15126.6(f). An EIR does not have to consider alternatives “whose effect cannot be reasonably ascertained and whose implementation is remote and speculative.” CEQA Guidelines Section 15126.6(f)(3). Further, “an EIR need not study in detail an alternative that is infeasible or that the lead agency has reasonably



determined cannot achieve the project's underlying fundamental purpose.”  
*CALFED Proceedings, supra*, at 1165 (citing and quoting *Goleta, supra*, at 574 (“a project alternative which cannot be feasibly accomplished need not be extensively considered”).) Further, “a lead agency may structure its EIR alternative analysis around a reasonable definition of underlying purpose and need not study alternatives that cannot achieve that basic goal.”  
*CALFED Proceedings, supra*, at 1166.

No change to the text was made.

## Moricz, Nancy

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**From:** mbsbcfb@hwy246.net  
**Sent:** Tuesday, March 20, 2012 11:16 AM  
**To:** Cvfppl\_Comments  
**Subject:** Comments on the Central Valley Flood Protection Plan

Mistie Bainer  
Administrative Assistant  
Santa Barbara County Farm Bureau  
180 Industrial Way  
Buellton, CA 93427-9507

# G\_SBCFB1

March 20, 2012

Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento, CA 95821

G\_SBCFB1-01 Dear Central Valley Flood Protection Board:

I am writing regarding the State of California's Draft Central Valley Flood Protection Plan.

A viable agricultural industry is essential to the State's economy and particularly to the rural areas within the Central Valley. The future of rural communities and the viability of agriculture in the Central Valley is, in turn, dependent upon the State's ability to plan a resilient flood protection system that is compatible with and supportive of Central Valley agriculture.

As a Central Valley agricultural stakeholder, I am concerned that, by moving levees and widening bypasses, the Flood Plan proposes to expose to periodic flooding some 40,000 acres of predominantly agricultural lands now located behind the levees. A plan that "expands" and puts more habitat in our existing floodways, without rehabilitating the existing system or ensuring proper maintenance in the future, risks sacrificing thousands of acres of existing agricultural lands, without ensuring we will be any better off in the end.

G\_SBCFB1-02 Some types of agriculture can and do coexist in the state's existing bypasses and overflow basins. In contrast, farming on lands that have been historically protected from flooding is frequently incompatible with flooding. Shifting lands from behind levees into the floodplain would be very disruptive to the farming operations and businesses currently on those lands.

G\_SBCFB1-03 Private property rights are also at stake. Lands or interests in lands would have to be acquired from willing sellers—or, where there are no willing sellers, could be acquired by eminent domain. Condemnation of private lands should be a tool of last resort and should be used only where there is a compelling public purpose.

G\_SBCFB1-04 The proposed plan would dislocate people, homes, multi-generational family farming operations, and established businesses, representing decades of hard work and investment, without the means to fully compensate such loss, and no clear or adequate transition plan.

G\_SBCFB1-05 While representatives from the California Department of Water Resources have suggested that more extensive outreach to local agencies, farmers, and landowners will occur in the "regional planning" and "feasibility study" and "project implementation" phases of the Plan, it is a serious concern for Central Valley agricultural stakeholders that the major features of the Plan have been already selected with little or no attempt on the part of the State to involve affected local interests. As of today, most affected farmers, landowners, and local interests remain wholly uninformed of the State's proposed Plan.

As a Central Valley agricultural stakeholder, I am calling on the State of California to reach out to local governments, rural communities, farmers, and landowners to ensure local issues and concerns are fully understood, taken into account, and addressed.

Thank you for the opportunity to comment.

Sincerely,

Mistie Bainer  
Administrative Assistant  
Santa Barbara County Farm Bureau

**Santa Barbara County Farm Bureau, Mistie Bainer,  
Administrative Assistant**

***Response***

***G\_SBCFB1-01***

As stated in Master Response 1, expansion of the Sutter, Yolo, and Sacramento bypasses was identified as an example of increasing the overall capacity of the flood management system to convey and attenuate large flood events. Peak flood stages could be reduced along the Sacramento River, and to a lesser extent, along its tributaries. Lowering flood stages throughout much of the system would benefit urban, small-community, and rural-agricultural areas alike. Constructing new bypasses, such as constructing a bypass from the upper Feather River to the Butte Basin and expanding Paradise Cut from the San Joaquin River into the south Delta, would further contribute to reducing peak flood stage along reaches of the Feather River and lower San Joaquin River.

Several factors would be considered in the design and operation of bypass improvement elements: existing land uses, hydraulic considerations, ecosystem restoration features and benefits (including conservation and restoration of aquatic and floodplain habitats), and continued compatible agricultural land uses within the bypass. See Master Response 1 for additional information.

***G\_SBCFB1-02***

As stated in Master Response 1, the PEIR recognizes that converting current land uses (particularly agricultural uses) to bypass and related uses (such as habitat and recreation) would result in potentially significant and unavoidable impacts, particularly on agriculture, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA). Many commenters expressed the view that such conversions should not occur, and that including such conversions in the SSIA undervalues agriculture as a primary industry in the Central Valley that provides a range of economic, social, habitat, and other benefits. Many commenters also explained that particular lands have been in family ownership for generations, often dating back to the earliest days of statehood. DWR and the Board respect these benefits and the relationships that many individuals have to any lands that might be converted, which are anticipated to be substantial topics during any project-level public engagement processes. However, the DPEIR has adequately addressed the environmental issues at a program level and no new significant environmental topic or information was raised in the comments.

Several commenters expressed concern regarding the potential for particular properties to be included in a bypass proposal. Concerns were also expressed that preliminary identification of conceptual bypass designs might create a “cloud” over the properties, making it difficult to manage, obtain loans for, or sell those properties. DWR and the Board wish to make clear that the conceptual designs reflected in the CVFPP do not reflect a determination regarding any specific properties, and that the potential involvement of particular properties in any future bypass project is entirely speculative at this time. Potential agricultural land conversions and the resulting effects are discussed further in Master Responses 2 and 3.

***G\_SBCFB1-03***

As stated in Master Response 2, in addition to expansion of the bypass system, levee reconstruction, and other elements, the SSIA includes State investments in agricultural conservation easements, which involves working with willing landowners where easements would be consistent with local land use plans. These easements would be used to preserve agriculture and prevent urban development in current agricultural areas, discouraging conversion to land uses that would increase flood risks within floodplains protected by SPFC facilities. Agricultural conservation easements could be purchased through various DWR programs; an example is DWR’s Flood Corridor Program, which focuses on nonstructural flood risk reduction integrated with protection of natural resources and agricultural lands.

***G\_SBCFB1-04***

As stated in Master Response 2, the conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified. The CVFPP states the preference to work with willing landowners for needed land acquisitions. All land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable.

***G\_SBCFB1-05***

As stated in Master Response 13, a multiphase public engagement planning process informed development of the 2012 CVFPP and provided many different venues for communicating and engaging with a broad range of partners and interested parties. This extensive public engagement process for plan development, which began in January 2009, involved about 450 people representing public agencies, businesses, interest-based organizations, and members of the public. The process included nearly 300 meetings and more than 40 publications, in addition to development of a public Web site and webinars. A full list of participants and forms of engagement in plan development are available in Attachment 5, “Engagement Record,” in Appendix A, “Central Valley Flood Protection Plan.” The participants in the engagement process assisted DWR in identifying problems, developing CVFPP goals, identifying the range of management actions to consider in the CVFPP, and reviewing and commenting on the draft content of the CVFPP.

In addition, anticipated activities after adoption of the 2012 CVFPP include regional flood management planning, development of basin-wide feasibility studies, and completion of project-level proposals and environmental compliance. These efforts will engage local entities and stakeholders to help identify projects to meet local and regional needs for flood management, refine the conceptual system elements proposed in the adopted plan, and identify specific projects for construction. See Master Response 13 for more information.



**G\_SCFB1**

**SACRAMENTO COUNTY FARM BUREAU**

8970 Elk Grove Boulevard • Elk Grove, California 95624-1946  
(916) 685-6958 • Fax (916) 685-7125

April 20, 2012

Ms. Nancy Moricz  
Central Valley Flood Protection Board  
3310 El Camino Ave., Room 151  
Sacramento, CA 95821

Sent Via email: [cvfppcom@water.ca.gov](mailto:cvfppcom@water.ca.gov)

**Re: Draft Central Valley Flood Protection Plan comments**

Dear Ms. Moricz;

G\_SCFB1-01 On behalf of the Sacramento County Farm Bureau Board of Directors please accept these comments on the draft Central Valley Protection Plan.

The Sacramento County Farm Bureau is a non-governmental, non-profit, grassroots organization. Our purpose is to protect and promote agricultural interests throughout Sacramento County and to find solutions to the problems of the farm, the farm home, and rural communities. Farm Bureau strives to protect and improve the ability of farmers and ranchers engaged in production agriculture to provide a reliable supply of food and fiber through responsible stewardship of California's resources.

It recently has come to our attention the potential footprint of the Flood Plan is much bigger than we thought, as revealed in Appendix A (the "CFPP Cost Estimate Methodology") to Attachment 8J to the Flood Plan ("Cost Estimates").

Specifically, 36,800 acres acquired inside levees for new bypasses and bypass expansions; 10,500 acres of that becomes habitat, 75/25 split in Yolo Bypass and elsewhere. Over and above that, as it appears through recent findings, the cost estimate assumes 70,000-115,000 acres of "agricultural easements" outside of the bypasses. Of which the cost estimate assumes separate flowage easements on 50,000 to 75,000 acres to accommodate 200,000 acre-feet of capacity in the Sacramento Valley and 100,000 acre-feet of transitional storage in the San Joaquin River watershed.

*To Represent and Promote Agriculture in Sacramento County*

The Plan goes on to state that easements would be acquired from 'willing sellers', but then incorporates these very large acreages as an assumed component of the overall, long-term blueprint of the Plan. We strongly oppose the involuntary approach to acquisition of land, either through easements or fee title.

G\_SCFB1-02 We are greatly concerned over the expanded agricultural footprint of the project and even more concerned over the apparent intent to not disclose important information. While it may be assumed there are few direct impacts in the geographical boundary of Sacramento County, the lively hood of our farmers and ranchers benefit from the thriving agricultural industry in the region. Any negative impacts to agricultural land in our neighboring counties will have direct impact to agriculture viability in Sacramento County.

G\_SCFB1-03 We strongly encourage the Central Valley Flood Protection Board to extend the final comment period and properly present all information. To hurry through the Plan to have final adoption in July is extremely risky as it will result in long-term negative consequences.

We appreciate the opportunity to provide comments.

Sincerely,



Kevin Steward  
President



**Kevin Steward, President, Sacramento County Farm Bureau,  
Elk Grove, California**

***Response***

***G\_SCFB1-01***

Implementation of the SSIA includes expansion and extension of the bypass system and levee setbacks. These actions would expand flood system lands up to an additional 35,000 to 40,000 acres, which would be flooded during high water. The agricultural conservation easements described in Attachment 8J include lands on the landward side of levees that will be preserved in current land use (primarily agriculture). This will also reduce future development in the floodplains. While specific agricultural conservation easements (acreages) have not been identified at this time, the assumptions for the distribution of agricultural conservation easements are listed in Table 4-3. These easements are for land that will not be used for the bypass expansion proposed in the 2012 CVFPP.

As stated in Master Response 2, because the SSIA was developed at a conceptual or program level, it does not identify any specific project; therefore, any lands or properties that may be needed to implement the plan are unknown at this time. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified. The CVFPP states the preference to work with willing landowners for needed land acquisitions where easements would be consistent with local land use plans. These agricultural conservation easements would be used to preserve agriculture and prevent urban development in current agricultural areas, easements could be purchased through various DWR programs; an example is DWR's Flood Corridor Program, which focuses on nonstructural flood risk reduction integrated with protection of natural resources and agricultural lands. All land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable. For additional details, Master Response 2.

In the event that future steps necessitate the use of eminent domain, such actions would be undertaken by agencies with the legal authority to exercise such powers and in compliance with federal and State law. California State law limits public agencies' use of eminent domain, and agencies seeking to implement management actions under the CVFPP would be subject to all the restrictions and limitations that exist for other agencies in California.

**G\_SCFB1-02**

See response to comment G\_SCFB1-01. As stated in Master Response 3, the SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises. Implementing the SSIA would increase the percentage of the population receiving at least 100-year (1 percent annual chance) flood protection from the current 21 percent to more than 90 percent (CVFPP, page 3-40). The remaining 10 percent of the population would receive benefits through residual risk management actions. Based on initial planning-level cost estimates developed to evaluate elements of various scenarios considered under the 2012 CVFPP, more than 20 percent of total SSIA investments would support rural-agricultural and small community improvements, and residual risk management. In addition, systemwide elements (which account for almost 40 percent of total SSIA investments) are anticipated to provide flood stage reduction benefits to many of the areas in the system, including small communities and rural-agricultural areas.

In addition, the PEIR prepared for the CVFPP includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) on pages 3.3-34 and 3.3-35 of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed.

The State supports the continued viability of small communities to preserve cultural and historical continuity and provide important social, economic, and public services to rural populations and agricultural enterprises. The SSIA describes State investment priorities in small community flood protection while avoiding the inducement of imprudent growth within SPFC floodplains. Under the SSIA, many small communities would receive increased flood protection benefits as a result of system improvements focused on protecting nearby urban areas.

The SSIA also outlines various State investments that would contribute to improved flood-risk management in rural-agricultural areas outside small communities. These actions are aimed at promoting sustainable rural-

agricultural economies without inducing imprudent urban development or increasing flood risks within lands protected by the SPFC.

**G\_SCFB1-03**

As stated in Master Response 14, regional flood management planning, to be conducted in each of nine regions identified in the 2012 CVFPP, is an important next step in identifying specific improvements to rural-agricultural areas, small communities, and urban areas consistent with the SSIA. Upon CVFPP adoption, DWR will work closely with local entities to collect on-the-ground information regarding flood risks and needs, identify potential local and regional improvement projects, assess the performance and feasibility of these projects, and develop proposals that reflect the priorities of local entities in reducing flood risks. Each regional plan will present an assessment of proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. DWR intends to provide guidance as well as technical and financial assistance to local agencies to prepare the regional flood management plans, subject to availability of funds.

Regional flood management plans are anticipated to:

- Assess regional flood risks and management actions (projects) to reduce these risks
- Discuss regional priorities, including criteria used to prioritize individual projects
- Describe specific projects, including their potential costs, regional and systemwide benefits, and beneficiaries
- Provide a financial plan describing how the proposed projects would be funded, including cost sharing and financing for local shares
- Describe regional governance of flood management

Development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts. Information and outcomes from the regional planning process will inform the State-led basin-wide feasibility studies, preparation of a financing plan for the CVFPP, and the first update of the CVFPP (scheduled for completion by 2017). This regional effort is scheduled to be launched publicly in June 2012 and is anticipated to continue through 2013.

DWR will engage regional flood planning partners to develop and implement communication strategies with broad interest groups to brief them on flood management planning in their regions. Regional implementing and operating agencies, land use agencies, and interest groups will be invited to participate in the planning process. Each regional planning process will seek input, as appropriate, from agricultural interests, environmental interests, permitting agencies/resource agencies, local emergency responders, tribes, and other stakeholders. DWR anticipates that a regional flood working group will be formed in each region.

SB 5 mandates that the CVFPP be adopted by July 1, 2012, or such other date as may be provided by the Legislature. Since no other date has been provided by the Legislature, DWR and the Board are moving ahead in anticipation that the July 1, 2012 date will not be postponed.

# G\_SHR1

**Mail address:**

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1155 Trancas St.  
Napa, CA 94558  
e-mail:  
[sunshine@snugharbor.net](mailto:sunshine@snugharbor.net)

**Resort location:**

Snug Harbor Resorts, LLC  
3356 Snug Harbor Drive  
(On Ryer Island)  
Walnut Grove, CA 95690  
Phone: (916)775-1455



December 27, 2011

Benjamin Carter, President, Board of Directors, Central Valley Flood Protection Board [jpendleb@water.ca.gov](mailto:jpendleb@water.ca.gov)  
Jay Punia, Executive Officer, CVFPB [jpunia@water.ca.gov](mailto:jpunia@water.ca.gov)  
Len Marino, Chief Engineer, CVFPB [lmario@water.ca.gov](mailto:lmario@water.ca.gov)  
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Printed copy mailed to

Board of Directors, Central Valley Flood Protection Board  
3310 El Camino Avenue Room 151  
Sacramento, CA 95821

Central Valley Flood Management Planning (CVFMP)  
Kere,uArroj. Chief, Merritt Rice, Project Manager  
Department of Water Resources  
P.O. Box 942836  
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Melinda Terry, Executive Director, Central Valley Flood Control Association and  
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& Gary Kienlen, MBK Engineers [kienlen@mbkengineers.com](mailto:kienlen@mbkengineers.com)

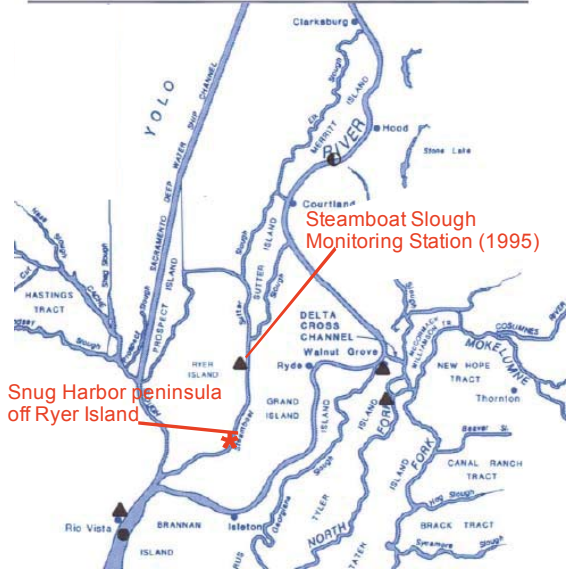
G\_SHR1-01

Dear CVFPBoard:

This letter is written to request review and revision of the proposed flood control plan for select locations within the Delta region, with a focus on the proposed flood flow capabilities for Steamboat Slough, between river miles 15 to 26, as shown on the CVFMP map, from the State Plan for Flood Control<sup>1</sup>. "Public safety is the top priority for the CVFPB" according to your website, so you appear to be the ones to address a potential public safety issue due to the proposed flood flow design capability of Steamboat Slough, Sutter Slough and the Main Stem of the Sacramento River, as shown in current documents online. Below is a map of the area of the Delta that is the topic of my concern, which is flow on Steamboat Slough and the effect of that flow on the landowners of Snug Harbor.

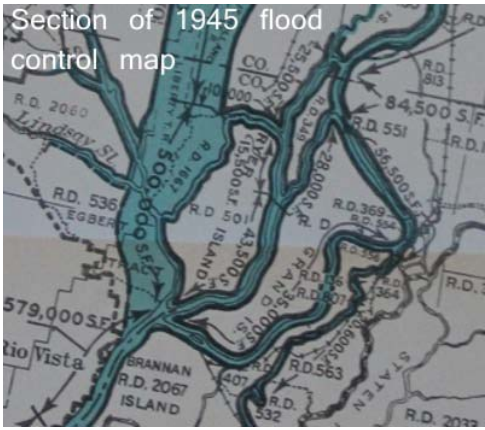
<sup>1</sup><http://www.water.ca.gov/cvfmp/docs/SPFCDescriptiveDocumentNov2010.pdf>

<http://baydeltaoffice.water.ca.gov/DeltaAtlas/04-WaterQuality.pdf>



Location of Snug Harbor on Steamboat Slough

Snug Harbor is a peninsula off Ryer Island, on Steamboat Slough about river mile 17.5. (Solano County 1961 survey map refers to the land as Martin’s Island)<sup>2</sup>. The SPFC indicates 43,500 cfs flood capacity flow for Steamboat Slough, the same flow as proposed in the 1945 Sacramento River Flood Control Project. However, the 1945 plan assumed Steamboat Slough would be maintained at a much deeper depth than it is today; no dredging of the silt has been done since 1977 according to local records. **Based on observation and experience over 14 years of ownership of property on Steamboat Slough, I believe the flood flow capacity of Steamboat Slough is more in the range of 15,000 cfs to 20,000 cfs total.**



Note how the section of the 2011 draft flow map (left) matches the 1945 Sacramento River Flood Control Project map of the same area. (right)

<sup>2</sup>[http://snugharbor.net/historic\\_steamboat\\_slough.htm](http://snugharbor.net/historic_steamboat_slough.htm)

Steamboat Slough – Sac River to Sutter Slough	10	7	28,000	28,000	28,000
Steamboat Slough – Sutter Slough to Sac River	7	0	43,500	43,500	43,500

<http://www.water.ca.gov/cvfm/docs/SPFCDescriptiveDocumentNov2010.pdf> (44 of 154)

G\_SHR1-03

Is the existence of Snug Harbor land owners and others along Steamboat Slough considered in the SPFC flood flow capacity assessment? Does the state realize it causes high water events on the properties of Steamboat Slough, at Snug Harbor, when flow is not even at 20,000 cfs and other factors are present? The SPFC does not appear to account for impact to Snug Harbor landowners or business.

G\_SHR1-04



In addition, even when flows are lower on Steamboat Slough, high water flow on Cache Slough can back up into Steamboat Slough, then into Snug Cove area, and cause flooding on the peninsula even when no other are of the Delta is flooding. I believe the Sacramento River (approximately River miles 15 to 35) is both wider and deeper, yet the SPFCmap below limits proposed flood flow to 35,000 cfs on the Sacramento River. Why does SPFC propose higher flow on Steamboat Slough, which has less physical capacity than the main stem of the Sacramento River? I added red

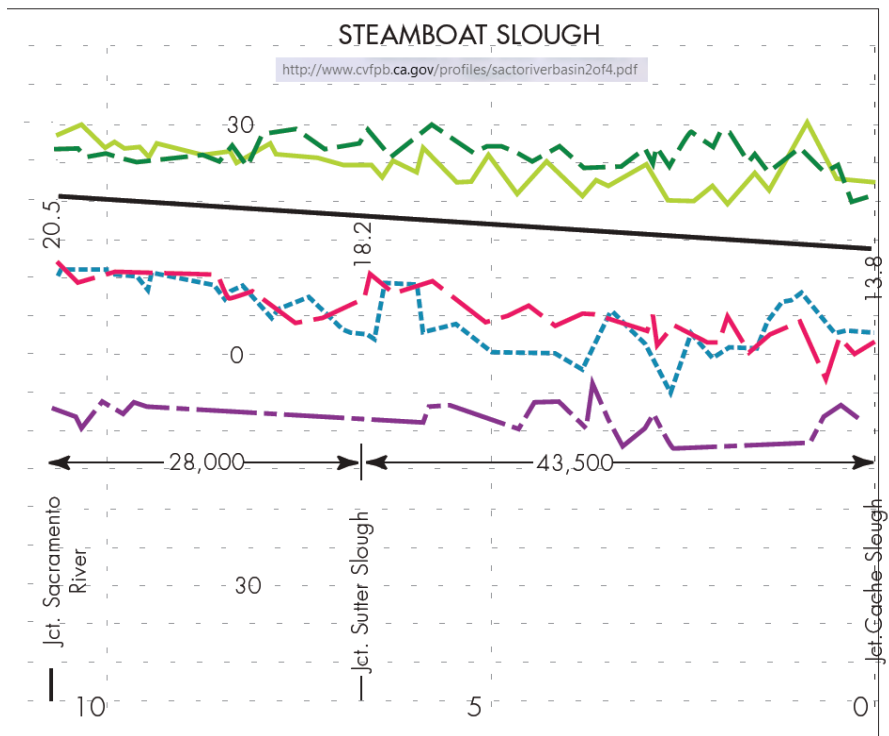
arrows to the photograph of the Snug Harbor peninsula to show how flood flows and the back up of flood flows reaches Snug Cove on the east side on the peninsula.

G\_SHR1-05

Perhaps in the past when Steamboat Slough was regularly dredged, it had the extra flow capacity. However, since 1976 or 1977, the last time it was dredged, Steamboat Slough has been filling in with silt at specific areas, which reduces the flow capacity. Noted silt or growing sandbar areas can be seen at approximate river miles 15, 17, 18, 19, and 23 to 26 at the north end of Steamboat Slough. I believe the slough bed has changed since the last dredging and the last depth survey also. (survey screen print on the next page).

G\_SHR1-06

Based on conversations with land owners along the northern portion of Steamboat Slough, they have seen a stark increase in silting in that area *in just the last two years*. By summer 2011 sandbars infested with non-native egeria densa have been seen on both sides of Steamboat Slough at all normal tide levels.



This graphic shows an estimated profile for Steamboat Slough that does not appear to account for current channel margin changes observed summer 2011.

G\_SHR1-07

In addition, the riparian restoration project off Grand Island south of Snug Harbor, combined with the levee toe & restoration project on the opposite side of Steamboat Slough, along Ryer Island, at about river mile 16.5, are creating a “bottle neck” effect that further causes back up of water flow onto Snug Harbor. If you consider flood water exiting Steamboat Slough as an important flood control “structure” then the importance of the continued water flow restriction in this area becomes more clear, as it is a known fact that sedimentation upstream from flood control structures obstructs flow and reduces capacity. The turbidity or particles in the water settle to the



bottom if the velocity of flow is slowed, thereby causing more silting in or raising of the slough bed, further reducing flood flow capacity.

G\_SHR1-08

In addition, the *reduction* of flow during summer and fall appears to have created an environment where the invasive aquatic plant species like egeria densa has flourished greatly along both sides or banks of Steamboat Slough for the entire length of the slough. Both the egeria densa infestation and the expansion of the tules on the growing sandbars will create further water flow hindrance, which further reduces flood capacity on Steamboat Slough. Basically, Steamboat Slough is receiving too much flow during high water times, and not enough fresh water flow during the summer and fall months.

G\_SHR1-09

Another problem has been the extreme ebb and flood tides on Steamboat Slough during the “fish studies” of the last few years. The “pulse flows” on Steamboat Slough from January through May, particularly in 2011, have been washing away the banks of Snug Harbor, especially the area at the north end of the peninsula, which is the sole access road for the 28 private home parcels and resort property which comprise Snug Harbor. (see photo on page 3 to locate north end of road) I do not know why the pulse flows of 2011 would cause so much erosion damage to the Snug Harbor banks, but they did.

G\_SHR1-10

For example, February through May 2011 we noticed sections of north bank along Snug Harbor Drive were washing away during the times when the extreme ebb and flood tides were present. I contacted Solano County public works and the representative for Reclamation District 501, Ryer Island. Several times we had to place sandbags along the banks. By April 2011, the road bank at the north end of Snug Harbor Drive had eroded to the edge of the pavement, and in one area had eroded as much as three feet under the pavement. We had to add substantially more sandbags, and I again contacted Solano County and Reclamation District 501 office, since if our road completely washed away, it could threaten the levee in that area as well. I also contacted the California Flood Control representative, as advised by



501 representative and Solano County office of Emergency services. By early May 2011, the road pavement was cracking and it looked like we could lose at least a quarter of the width of our one-lane road, which could cause risk to persons using the road, especially large emergency vehicles and large recreational vehicles. I contacted Solano County, Fish & Game and RD 501, but no one could provide assistance. In order to make sure the road

would not continue to erode (which might cause a risk hazard), I had “riprap” rock placed along the bank of the road, at low tides, over a two day period. A crane with a long arm was used to place the rock carefully so as to minimize water disturbance. I was not able to recapture the full width of the



washed out bank, but the riprap did stop road erosion. I also had riprap placed on the inside curve of the road, as the excess flows on Steamboat Slough had been backing into Snug Cove and eroding the road bank on the inside curve as well. Costs to protect from road bank erosion exceeded \$54,000 in spring 2011.

G\_SHR1-11

*In addition*, several sections of our bank within the park grounds experienced substantial erosion and we lost some very tall and healthy trees that fell into the water due to bank erosion during the extreme ebb and flood flows that seemed to coincide with DCC closure and fish “pulse flows”. The cost of cutting up and hauling out the trees was in excess of \$1500 each.

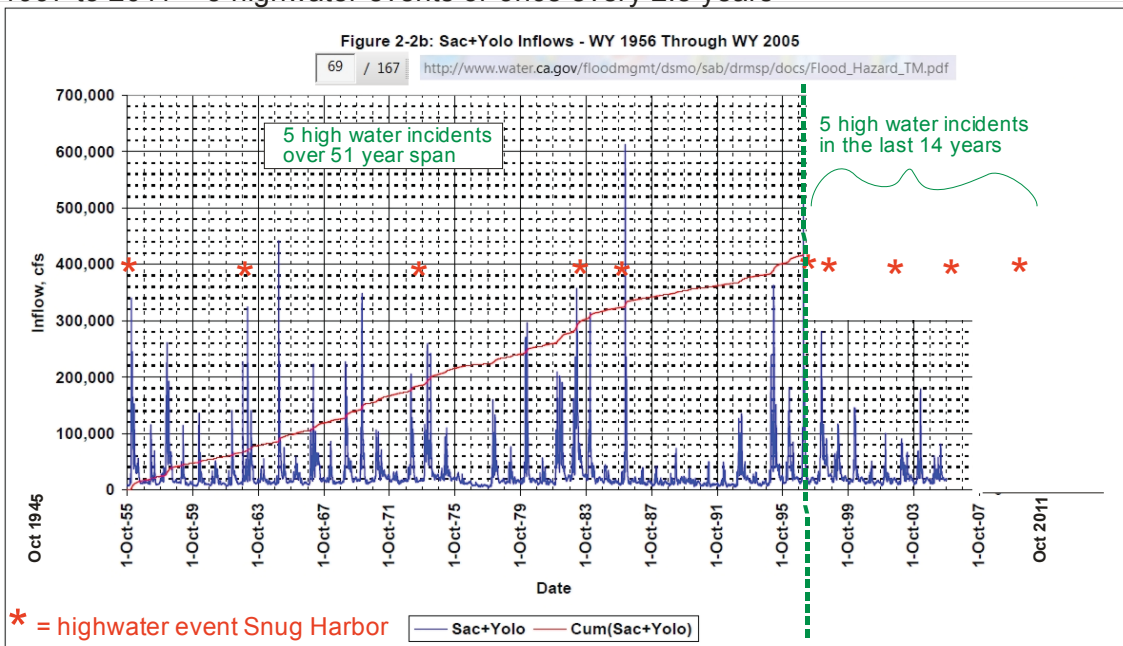
G\_SHR1-12

*In addition*, I have been collecting the historical records of “high water” events at Snug Harbor (Martin’s Island) since the property was developed into a marina, RV park and private home parcels starting in the early 1940’s when it was reconfigured into a peninsula under written agreement with state & federal authorities at that time, as recorded with resort parcel. (The island was purchased from the state in a land patent recorded 1878) Many of the original home owners along Snug Harbor Drive still have the properties in the same family, and some of seasonal visitors to the resort have been coming here since the 1950’s. Written records show that from 1945 to 1996 the only incidents of flooding any portion of the lands of Snug Harbor coincided with major floods Delta-wide: 1955/56, 1962, 1973, and 1986 were the years where flood waters came onto portions of Snug Harbor Drive, at least 6 inches deep, for at least 1 tide cycle. Five “high water” events over a 56 year span, each of which coincided with area-wide high water flow, indicates an average of once per every ten years the park should plan for flood clean up expenses.

However, from 1997 to spring of 2011, a span of 14 years, we have experienced high water events at Snug Harbor in 1997, 1998, 2002/2003, 2006 and spring 2011. **That is a new average of high water events every 2.8 years over a span of just 14 years!** Some of the high water incidents of the last 14 years have NOT coincided with high flow and precipitation levels on the Sacramento watershed system. Since other areas of the Delta have not had a similar increase in high water incidents, there must be a reason the state is sending excess flows onto Steamboat Slough at specific intervals, even during “dry” or low precipitation winters. The chart below was made by

combining DWR Sacramento River + Yolo Bypass inflows for 1956 through 2005<sup>3</sup> with the local Snug Harbor documented incidents of high water on Snug Harbor Drive, 1956 through spring 2011, to graphically show the substantial increase in high water incidents over the last 14 years, which did not necessarily correlate to system-wide excess water flow.

1945 to 1996 = 5 highwater events or once every 10 years  
 1997 to 2011 = 5 highwater events or once every 2.8 years



Note: Steamboat Slough/Snug Harbor highwater events added to DWR chart of historic flows

G\_SHR1-13



Note that I've been onsite for most of the high water events of the last 14 years. Photos to the left are from the 2006 high water event, where we had up to 12" of water onsite, and from 2011, where a portion of Snug Harbor Drive was affected. I've observed that it is not fast-flowing water that invades the peninsula land, but instead we see a slow rise of the water, like filling a bath tub, as the flow from Cache Slough backs up into Steamboat Slough, and the water flowing down Steamboat Slough gets trapped by the bottleneck around river mile 17 to 18, or blocked by the flow of Cache Slough.

<sup>3</sup>[http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/flood\\_hazard\\_TM.pdf](http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/flood_hazard_TM.pdf) page 69 or 167.

G\_SHR1-14

Clearly, there has been some change in how flow is directed onto Steamboat Slough in the last 14 years. Clearly, flow *capacity* of Steamboat Slough is declining as the slough bed is allowed to continue to silt in and restoration projects create further flow hindrances, all of which increases the average incidents of high water at Snug Harbor during winter or early spring months. It does not appear that the current proposed flood control plan for this area takes into account the above when calculating channel flow flood capacity.

G\_SHR1-15

(In addition, I've noted a pattern whereby closure of the Delta Cross Channel gates tends to increase flow on Steamboat Slough, and higher water flow seems to coincide with the "fish studies" regarding salmon and smelt runs, so perhaps when the fish agencies stop doing the studies, the flow issues will also cease?)

G\_SHR1-16



Note that the resort infrastructure was upgraded over the last 10 years to make sure we are ready and able to withstand the high water events, but that does not mean we are willing to be intentionally flooded for fish studies, Yolo Bypass annual inundation experiments, or water diversion for other reasons. State flow experiments for fish or export studies should not be allowed to negatively affect private land owner use, even if the properties are able to withstand the more frequent high water incidents. The state does not compensate for the repairs and clean up

costs, nor loss of revenue, when all of us on the Snug Harbor peninsula experience high water events due *not* to natural disasters, but due to the state water flow manager's intentional diversion of excess water into Steamboat Slough for studies and other non-natural disaster purposes.

G\_SHR1-17

I firmly believe the damage to Snug Harbor road and banks noted above is due to the state's assumption that Steamboat Slough flow capacity is higher than current physical configuration and experience shows, for the above reasons. I have expressed these same concerns to several DWR representatives since 2008, but my concerns have been ignored. I therefore specifically request that the following actions be considered by the CVFPB in conjunction with the SPFC study:

- (1) That a new monitoring station for flow, water level and salinity be installed and maintained on the lower end of Steamboat Slough between approximately river mile 16 to 17; all data shall be reported online through the state website<sup>4</sup> and costs for installation, maintenance and monitoring shall be borne by DWR or the state water contractors;
- (2) that the stated flood flow capacity of Steamboat Slough be reviewed and reduced to a reasonable, prudent level to protect land owners along the waterway;
- (3) that the state consider removal of the restoration project(s) that hinder flood flow capacity of Steamboat Slough;

<sup>4</sup><http://www.water.ca.gov> on the "dayflow" page or other page accessible to the general public.

- (4) that the entire length of Steamboat Slough be dredged to the 1977 depth if the state plans to continue to allocate so much flood water flow to Steamboat Slough;
- (5) that Ryer Island and Grand Island be closely inspected during one of the extreme low tides (if its not already done) so that the areas where the soil under the levee rocks are being undermined will be noted, and repaired, (at least 5 areas along Ryer Island levee adjacent to Snug Cove need attention and repair);
- (6) that funding be provided to the Department of Boating and Waterways in sufficient amount to eradicate flow-hindering invasive species, including egeria densa, along all banks of Steamboat Slough and the Main Steam of the Sacramento River;
- (7) that a fund be set up, paid by the water exporters, administered by NDWA, to compensate Steamboat Slough property owners and other NDWA landowners for damages caused by restoration projects and any "fish studies" made necessary due to ongoing and planned revision of water exports from the Sacramento River system, and that DWR, USBR and state water contractors assume all liability for damages to property and persons caused by the ongoing revisions to flows on Steamboat Slough and any other lands affected with the legal Delta region;
- (8) and I also request that if any more "fish studies" or other experiments affecting flood flow are conducted on Steamboat Slough, which result in damage to resort property, that funding be available to cover the cost of all such damage. Damage control funding should be included as part of the budget of the flow-affecting studies.

G\_SHR1-18

If you have any questions regarding any of the above, please email me at [sunshine@snugharbor.net](mailto:sunshine@snugharbor.net). For full copies of the maps referenced in this letter, please go to [http://snugharbor.net/california\\_delta\\_water\\_wars.html](http://snugharbor.net/california_delta_water_wars.html) or follow the links starting from <http://www.snugharbor.net>

Respectfully submitted,

*Nicole (Nicky) Suard, Esq.* (Submitted by email)

Nicole S. Suard, Esq., Managing Member, Snug Harbor Resorts, LLC

Cc: Robert Powel, Solano County Emergency contact.

Neil Hamilton, President, RD 501 District Office 3554 St. Highway 84, Walnut Grove Ca 95690  
(916)775-1411

## Snug Harbor Resorts, LLC

### **Response**

The comment letter was submitted before the public release of the 2012 CVFPP (December 2011) and the DPEIR (March 2012). Therefore, many of the comments concern the *State Plan of Flood Control Descriptive Document* (November 2010) and the *Draft Flood Control System Status Report* (December 2011), rather than the CVFPP or the DPEIR.

### **G\_SHR1-01**

As stated in Master Response 14, the 2012 CVFPP is a systemwide plan and was prepared at a conceptual level. Consequently, the plan does not include detailed data on local flood stages and flows, or specifics about future on-the-ground projects. Information on the performance of the SPFC is described in the *Flood Control System Status Report* (DWR 2011), incorporated by reference into the CVFPP. Information on specific projects and actions to implement the CVFPP will be developed during post-adoption activities; the CVFPP will be updated with this information, as appropriate, during its 5-year update cycles. The commenter is encouraged to participate in regional planning and other post-adoption activities addressing local flood conditions and potential project-specific implementation actions.

### **G\_SHR1-02**

The *State Plan of Flood Control Descriptive Document* describes flows in channels of the SPFC based on design flows and the flows described in the O&M manuals; according to the *State Plan of Flood Control Descriptive Document*, the flow for Steamboat Slough downstream from Sutter Slough is 43,500 cfs. Table B-1 in Appendix B of the *Flood Control System Status Report* estimates that the current channel conveyance capacity for that same reach of Steamboat Slough is 53,000 cfs. The commenter's observations regarding current channel capacity are noted. Estimated flow capacities for SPFC channels presented in the *Flood Control System Status Report* will be updated using new hydraulic models as part of DWR's CVFED Program, anticipated in 2013.

### **G\_SHR1-03**

As stated in response to comment G\_SHR1-02, the channel flow capacities shown in the *State Plan of Flood Control Descriptive Document* are from the O&M manuals for each of the projects and may not represent the current capacity of a given channel. Estimated flow capacities included in the *Flood Control System Status Report* will be updated using new hydraulic models as part of DWR's CVFED Program, anticipated in 2013. The comment is noted.

**G\_SHR1-04**

As stated in response to comment G\_SHR1-02, the channel capacities stated in the *State Plan of Flood Control Descriptive Document* are based on O&M manuals rather than gauge measurements or hydraulic analyses. The hydraulic computer models used in developing the CVFPP do take into account backwater from downstream segments (e.g., Cache Slough), and the relative size of river channels. However, the physical size of a river channel is only one of several factors influencing channel flow capacity. An equally important factor is the slope of the channel. When comparing the Sacramento River and Steamboat Slough in the area referenced by the commenter, it is important to note that Steamboat Slough is about one-third the length of the adjacent Sacramento River channel segment (12 miles versus 18 miles); consequently, Steamboat Slough has a steeper slope that results in a larger channel capacity than the adjacent Sacramento River channel. The comment is noted.

**G\_SHR1-05**

As stated in response to comment G\_SHR1-02, channel flow capacities in the *State Plan of Flood Control Descriptive Document* are based on design capacities, not actual or existing flow capacities. DWR's CVFED Program will update channel flow capacities based on existing conditions, for consideration in the 2017 CVFPP update. The comment is noted.

**G\_SHR1-06**

See response to comment G\_SHR1-01. The comment is noted.

**G\_SHR1-07**

Local HCPs can be countywide initiatives or can be implemented in response to proposed development. The main objectives of these plans are to protect natural resources, including species and habitat, and to enhance coordination and collaboration of development stakeholders.

If a place-based project would be defined and pursued as part of the proposed program, and if the CEQA lead agency would be subject to the authority of local jurisdictions, the applicable county and city policies and ordinances would be addressed in a project-level CEQA document as necessary. Planting of vegetation in the floodway may not be authorized by the Board, USACE, or other agencies if the vegetation would impede flood flows sufficiently that a rise in water surface elevation would cause a significant increase in risk to public safety.

As stated in Master Response 16, Mitigation Measure BIO-A-2a (NTMA) requires that project proponents obtain any permits applicable to the activity of removing riparian vegetation and comply with all terms and

conditions of these permits. Examples of permits would be a Section 1602 streambed alteration agreement from DFG, federal ESA authorization from USFWS and/or NMFS, and authorization under the CESA from DFG. Any mitigation plantings in the floodway would not be permitted if they would result in substantial increases in flood stage elevations, or alter flows in a manner that would have a substantial adverse effect on the opposite bank.

***G\_SHR1-08***

Flows at a given time and location in the Sacramento River basin are the result of many complex factors such as hydrology, flood management operations, water supply operations, and environmental requirements. Furthermore, DWR does not directly control the flow split between Steamboat Slough and the Sacramento River, which is dependent on the channel hydraulics. The CVFPP as currently configured will not change low flow conditions in the Delta, and is focused on managing extreme, high flow events (floods). See also response to comment G\_SHR1-07. The comment is noted.

***G\_SHR1-09***

Fisheries studies on Steamboat Slough are outside the scope of the CVFPP and are not part of the CVFPP. The comment is noted, but it does not raise issues or concerns specific to the environmental analysis presented in the DPEIR; no further response is required.

***G\_SHR1-10***

See response to comment G\_SHR1-01. The comment is noted, but it does not raise issues or concerns specific to the environmental analysis presented in the DPEIR; no further response is required.

***G\_SHR1-11***

See response to comment G\_SHR1-07. The comment is noted, but it does not raise issues or concerns specific to the environmental analysis presented in the DPEIR; no further response is required.

***G\_SHR1-12***

The comment is noted. See responses to comments G\_SHR1-07 and G\_SHR1-08. The comment does not raise issues or concerns specific to the environmental analysis presented in the DPEIR; no further response is required.

***G\_SHR1-13***

The CVFED hydraulic models, which will support the 2017 CVFPP update, are based on current channel data and should provide updated



results for SPFC channels. See also responses to comments G\_SHR1-02, G\_SHR1-07, and G\_SHR1-08. The comment is noted.

**G\_SHR1-14**

The CVFPP is a conceptual plan prepared at a systemwide level; as such, it does not specifically address localized channel conditions on Steamboat Slough. See also responses to comments G\_SHR1-02, G\_SHR1-07, and G\_SHR1-08. The comment is noted, but it does not raise issues or concerns specific to the environmental analysis presented in the DPEIR; no further response is required.

**G\_SHR1-15**

The DCC gates are required to be closed when flows exceed 20,000 cfs to 25,000 cfs in the Sacramento River. In comparison, the diversion capacity of the DCC is about 3,500 cfs, which is small in comparison to total flow in Steamboat Slough and adjacent delta channels. The comment is noted.

**G\_SHR1-16**

Fisheries studies on Steamboat Slough are outside the scope of the CVFPP and are not part of the CVFPP. The comment is noted, but it does not raise issues or concerns specific to the environmental analysis presented in the DPEIR; no further response is required.

**G\_SHR1-17**

The comment is noted. As stated in response to comment G\_SHR1-02, channel flow capacities presented in the *State Plan of Flood Control Descriptive Document* are based on design capacities and O&M manuals, not existing or actual conditions. The 2017 CVFPP update will incorporate new channel capacity information and hydraulic modeling being conducted as part of the CVFED Program, as appropriate. The CVFPP as currently configured will not change low flow conditions in the Delta, and is focused on managing extreme, high flow events (i.e., floods). Furthermore, the CVFPP is unlikely to affect the Delta water management actions of other programs and agencies, such as pulse flows to support Delta fisheries restoration. Regional planning will occur as part of CVFPP post-adoption activities and is the suggested avenue to pursue local projects that may address the comment's specific concerns; these projects may include monitoring stations, removal of flow constrictions, channel maintenance, and removal of invasive species.

**G\_SHR1-18**

The link provided in the comment is noted.



# G SJFBF1 SAN JOAQUIN FARM BUREAU FEDERATION

MEETING TODAY'S CHALLENGES / PLANNING FOR TOMORROW

April 20, 2012

Central Valley Flood Protection Board  
Attn: Ms. Nancy Moricz  
3310 El Camino Ave, Room 151  
Sacramento, CA 95821

Mary Ann Hadden, Staff Environmental Scientist  
DWR, Division of Flood Management  
c/o MWH  
3321 Power Inn Road, Suite 300  
Sacramento, CA 95826

Submitted via email: [DPEIRcomments@water.ca.gov](mailto:DPEIRcomments@water.ca.gov)  
[cvfppcom@water.ca.gov](mailto:cvfppcom@water.ca.gov)

## RE: Central Valley Flood Management Plan

Dear Board Members:

G\_SJFBF1-01

The San Joaquin Farm Bureau Federation represents over 4,000 farming and ranching families in San Joaquin County, and in the San Joaquin River flood management planning area. We are commenting today to express our concerns with the most recent Central Valley Flood Management Plan (Plan) proposal. First off we would like to request an extension to review these substantial documents. The "volumes" as represented at the Stockton field hearing, were represented as substantial documents that event those accustomed to reviewing these types of documents found difficult to digest fully and meaningfully.

G\_SJFBF1-02

Furthermore, we recently learned after the hearings that the potential footprint of Plan much bigger than we initially were led to believe, as revealed in Appendix A (the "CVFPP Cost Estimate Methodology") to Attachment 8J to the Flood Plan ("Cost Estimates" document).

G\_SJFBF1-03

Specifically we understand that 36,800 acres are to be acquired inside levees for new bypasses and bypass expansions (Table 4-1); with a great deal of these becoming habitat acres. We also understand that the Plan calls for easements and assumes both ag, transitional storage, and flowage easements, would be from willing sellers, and assumes this logic as part of the blueprint. We are concerned as the Board expressed desires to reach out to individual landowners, to discuss important issues such as these that are being raised, but seemingly has failed to adequately demonstrate good faith in educating individual property owners of these plans.

G\_SJFBF1-04

This is alarming as these facts could only be found buried deep in the Technical Appendices of the Plan and were not discussed in our Stockton public meeting.

For these overwhelming reasons, we ask that the time frame be extended to review these items more closely, and to hear Board responses on these very important features of a Plan before they are adopted to avoid unintended consequences. Thank you for the opportunity to comment. If you have any questions please contact our staff member Katie Patterson (209) 931-4931.

Sincerely,

A handwritten signature in black ink, appearing to read 'BF', with a stylized flourish at the end.

Bruce Fry  
President

## **San Joaquin Farm Bureau Federation**

### ***Response***

#### ***G\_SJFBF1-01***

The comment regarding a request for a 30-day extension to the current comment periods for the various plans associated with the Central Valley Flood Management Plan is noted. As stated in Master Response 22, CEQA Guidelines Section 15105(a) states that when a draft EIR is submitted to the State Clearinghouse for review by State agencies, the public review period shall not be less than 45 days. The DPEIR was made available for public comment on March 6, 2012; however, most attachments (the CVFPP and attachments) were publicly available several months before. DWR decided not to extend the 45-day public comment period after considering several factors: (1) Many of the key documents had been available for more than 45 days; (2) the vast majority of commenters did not see a need to request an extension; (3) a number of commenters had already responded in a timely manner, many with very detailed comments; (4) the commenters requesting extensions were simultaneously filing comments reflecting a thoughtful review; (5) a highly publicized outreach and engagement program was initiated with stakeholders; and (6) it was necessary to ensure compliance with the rapidly approaching July 1 statutory deadline. DWR appreciates the diligent efforts made by all of those who have participated in the development of the CVFPP, including those who submitted timely comments on the DPEIR. For additional details, see Master Response 22.

The schedule for releasing and adopting the draft CVFPP was dictated by the Central Valley Flood Protection Act of 2008, and DWR and the Board have acted consistently with this schedule. As stated in Master Response 13, the Board provided various opportunities for members of the public and agencies to comment on the public draft CVFPP, released in December 2011. Hearings were held in 2012 on April 5 (Sacramento), April 6 (Marysville), April 9 (Stockton), and April 11 (Woodland), and public comments were heard and discussed at both regular and special Board meetings. DWR also accepted comments on the DPEIR, which was released in early March 2012. More information on the Board's process for public review and plan adoption can be found on its Web site, <http://www.cvfpb.ca.gov>. For additional details, see Master Response 13.

#### ***G\_SJFBF1-02***

As stated in Master Response 20, multiple comments were received during the public review processes for the draft CVFPP and DPEIR expressing concern about the conceptual levee setback element depicted on a map in

Attachment 8J, “Cost Estimates,” found in Volume IV of DPEIR Appendix A, “Central Valley Flood Protection Plan.” The comments generally expressed concern that the conceptual setback would require conversion of the particular agricultural lands indicated on the map, among other issues.

These concerns reflect several apparent misunderstandings regarding the map and its intended purpose. First, the levee setback element of concern was included in the preliminary approach entitled “Enhance Flood System Capacity Approach,” but not in the recommended SSIA. The referenced map is from page E-12 in Appendix E to Attachment 8J to DPEIR Appendix A, “Central Valley Flood Protection Plan.” However, as explained in the DPEIR, development of the SSIA is the State’s proposal for balanced, sustainable flood management in the Central Valley. The Enhance Flood System Capacity approach is not being proposed by DWR.

Other documents support the conclusion that the levee setback element of concern to the commenters was not included in the recommended SSIA. For example, Figure 7-25 in Attachment 7, “Plan Formulation Report,” found in Volume II of DPEIR Appendix A, “Central Valley Flood Protection Plan,” illustrates all the elements included in the Enhance Flood System Capacity approach. It shows a setback levee area in the lower Feather River under this approach. However, this setback element is not carried forward in the SSIA, as depicted in Figure 8-1 in Attachment 7 and in Figure 3-1 of the public draft CVFPP (these are the same figure).

This particular conceptual setback was developed primarily for cost evaluation and comparison purposes. Specifically, Tables 6-11 and 6-15 in Attachment 8J, “Cost Estimates,” found in Volume IV of DPEIR Appendix A, “Central Valley Flood Protection Plan,” summarize the cost items assumed for the Enhance Flood System Capacity approach and for the SSIA, respectively. The cost of any rural setback levees (including the conceptual setback of concern to the commenters) is reflected in Column 15, “Rural Setback Levees,” of each table. When comparing these two tables (regarding the SSIA and Enhance Flood System Capacity approach, respectively), the costs of conceptual rural setback levees were included in the Enhance Flood System Capacity approach (Table 6-11), but the corresponding value in Table 6-15 is zero, further confirming that the conceptual levee of concern to the commenters is not included in the recommended SSIA.

In addition, all of the conceptual setback evaluations (even those evaluated under the SSIA) are conceptual only. As explained further in Master Responses 1 and 23, additional improvements would be evaluated on a case-by-case basis to address known performance problems and to incorporate additional environmental and other benefits. No specific

alignments are being proposed at this time, and the development of more specific setback project proposals (if any) will involve substantial additional analysis and public participation.

***G\_SJFBF1-03***

See response to comment G\_SJFBF1-02.

***G\_SJFBF1-04***

See response to comment G\_SJFBF1-01.



SIERRA NORTHERN RAILWAY

221 1<sup>st</sup> Street  
Davis, CA 95616  
Tel: 530-759-9827 x506  
Fax: 530-759-9872

January 31, 2011

Jerry Johns, Deputy Director  
Department of Water Resources  
1416 Ninth Street  
Sacramento, CA 95814

**G\_SNR1**

Re: Bay Delta Conservation Plan

Dear Mr. Johns:

G\_SNR1-01

It has come to our attention that a Bay Delta Conservation Plan ("BDCP") is being prepared and that information is being collected, and options are being studied, concerning species and habitat restoration.

Sierra Northern Railway ("Sierra") is a common carrier railroad which provides freight and passenger service between West Sacramento and Woodland, California. Sierra's line includes the Fremont Trestle, which was constructed in the early 1900's and which crosses the Yolo Bypass parallel to Interstate 5. Sierra also owns a borrow pit (now a lake) immediately north of Sierra's line and west of the Conaway Sacramento River intake facility. Water serving the Conaway Ranch and others is pumped from the Sacramento River into one end of the lake and extracted at the other end for use by the benefitting parties.

We are considering selling our Fremont Trestle, our lake, and our related property in the area. In order to ensure that we are disclosing all relevant information to potential buyers, we are seeking to determine what, if any, rights other parties may claim to these properties. If you or your organization believes that you have any rights related to our trestle, lake, or any associated property (including any flowage rights or other easements over or through the properties), please provide us with copies of the documents that you believe grants such rights so that we can make the appropriate disclosures.

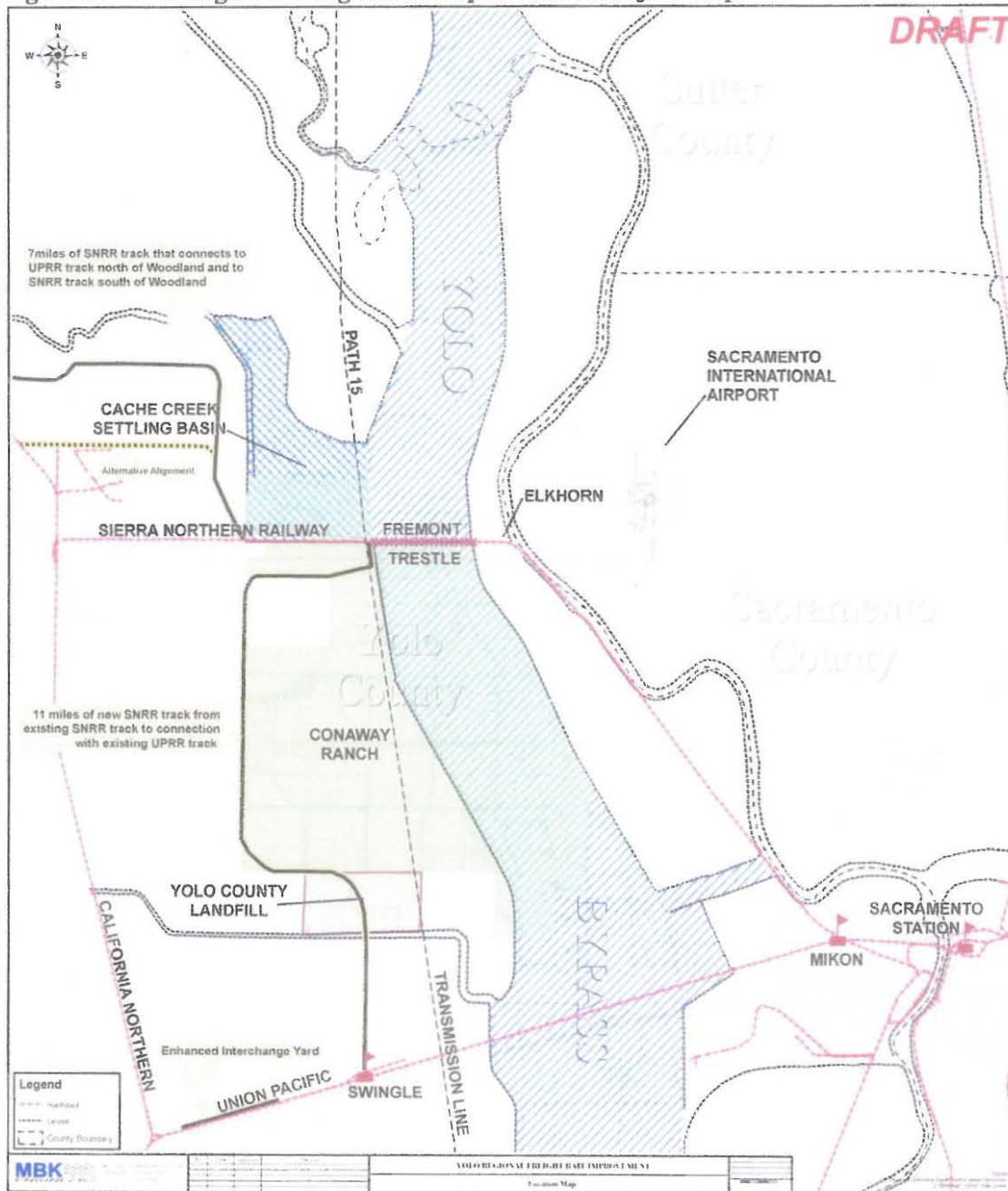
In the event that it is relevant to your BDCP, enclosed is a copy of an MBK Engineers' white paper providing details about water flows and the Fremont Trestle. Also enclosed is a description of a proposed relocation of our line that would provide alternate rail access to Woodland from Davis and West Sacramento while allowing the removal of the Fremont Trestle.

Please contact Val Toppenberg at (530) 759-9827 x 506 or [vtoppy@gmail.com](mailto:vtoppy@gmail.com) if you have any questions about the proposed rail relocation project; or Dave Magaw at (530) 666-9646 or [davemagaw@gmail.com](mailto:davemagaw@gmail.com) if you have questions about rail operations or the trestle.

Sincerely,

Sierra Northern Railway

**Figure 1 – Yolo Regional Freight Rail Improvement Project Map**

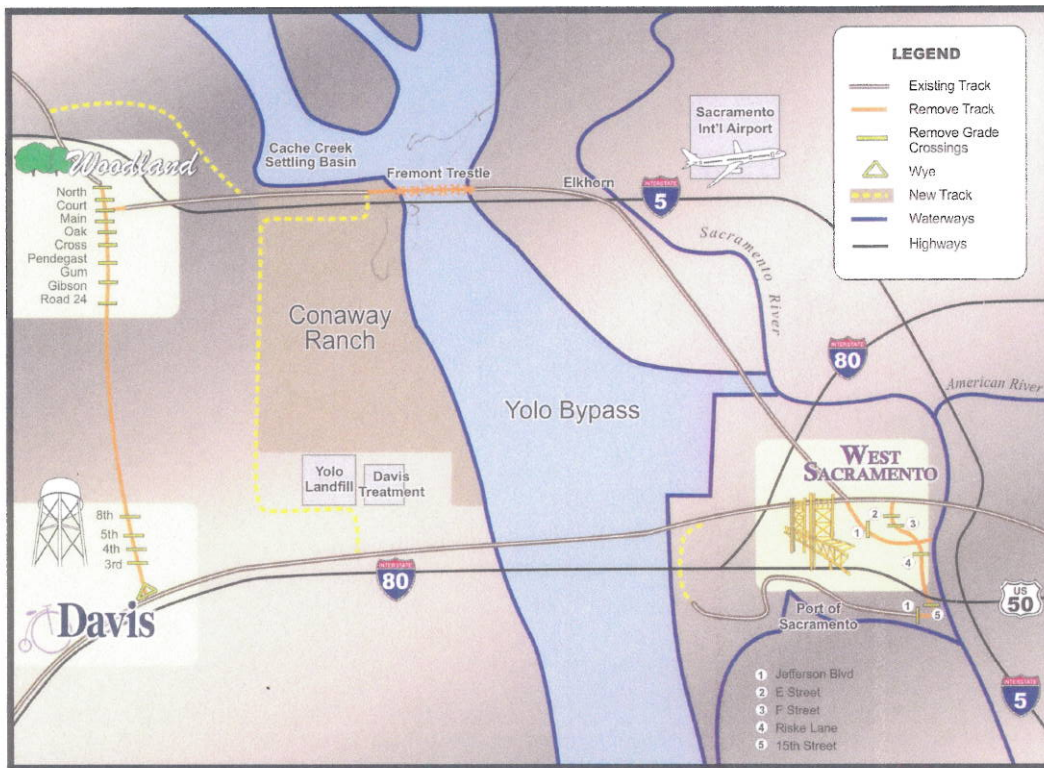




# Yolo Rail Relocation Project Description

## Summary

The YRRP is a multijurisdictional project which involves the construction of a new rail connection between the Union Pacific main line parallel to freeway I-80 approximately eight miles through Yolo county reconnecting to the Sierra Northern line; constructing a new line from the Sierra Northern line through Sugarfield to the California Northern line; and constructing a new connection between the UP main line to the Port of West Sacramento.



This new construction will allow the removal of the Fremont Trestle and the removal of the existing Sacramento Northern line between the cities of Davis and Woodland, and removal of the Westgate Yard in the city of West Sacramento.

The removal of the trestle will eliminate a significant flood protection obstacle within the Yolo Bypass area reducing risks of flooding for areas within Sacramento County and for the city of Woodland. The removal of the Sacramento Northern line and the other related work would allow the removal of 19 at grade rail crossings in the cities of Davis, Woodland and West Sacramento.

Track improvements north of Woodland will better serve industrial users in the north county and city of Woodland areas. Improvements in West Sacramento will provide improved rail service to the Port of West Sacramento and to many industrial customers in the city. The removal of the Westgate Yard will make that land available for development and improve access to the waterfront area and traffic flow into Southport.



## The Project

The project includes the construction of approximately eight miles of new track beginning at the existing at grade crossing of E. Main Street and crossing under I-5 from the Sierra Northern line parallel to E. Main Street (County Road 22) just west of the existing Fremont Trestle. The new line will turn to the west at the northern edge of the Conaway Ranch for approximately one mile and then turn southerly parallel to County Road 103 for approximately three miles. Sensitive areas of the Conaway Ranch will be avoided by this routing. The line will then turn easterly just south of the Yolo Central Landfill and Willow Slough for approximately one mile and then turn southerly for approximately one and a half miles to connect with the Union Pacific main line at an existing switching area at Swingle near I-80.

Two miles of new rail will also be constructed connecting the Sierra Northern line at County Road 103 north past Sugarfield to serve industrial customers in the established industrial area north of Woodland, and reconnecting to the California Northern line paralleling I-5 north of Woodland.

A new rail line will also be constructed in the city of West Sacramento from the UP main line near I-80 at Enterprise Blvd, crossing under I-80 and connecting with existing Sierra Northern lines serving the Port of West Sacramento and industrial customers in the established Port Sacramento industrial area.

A new interchange railyard will be constructed along with the West Sacramento line to allow the removal of the Westgate yard from the waterfront "Bridge District" redevelopment area. The new interchange yard will improve service to the Port of West Sacramento and West Sacramento customers.

A new rail storage area will be constructed south of and parallel to I-5 between the interstate and the new track at the northern edge of Conaway Ranch. Construction of a new interchange railyard is also proposed at or near Swingle. This new interchange railyard would replace the existing rail interchange tracks parallel to 2<sup>nd</sup> Street near the existing wye in Davis.

In addition to improvements benefiting rail served customers, the project will allow the removal of the Fremont Trestle, the most important restriction to flood flows in the Yolo bypass and the Cache Creek settling basin. The complete project will also result in the elimination of ten at grade rail crossings in the city of Woodland, six from the city of West Sacramento and four from the city of Davis. At grade crossings in rural Yolo County will be relocated with the new line.

Rights of way acquired for new track may also be available for water lines, power lines or other utilities. The route of the rail provides the ideal opportunity for water facilities to be installed in a convenient and cost effective manner.

### **Flood Protection Improvements**

A key project element is the removal of the Fremont Trestle. With trains diverted from their historic route along the west side of the Sacramento River and across the bypass, the primary need for the Fremont Trestle will be eliminated and the trestle can be removed.

The location of the trestle is at the narrowest point of the Yolo Bypass. According to hydraulic studies the trestle structure itself occupies approximately 34 percent of the flow capacity of the bypass at that constriction. Complicating things further, the piers of the wooden trestle serve as a collection screen for debris, logs and limbs which further obstructs floodwater flows.



By removing the trestle, hydrology studies calculate that the water surface elevation at flood stage immediately north of the trestle will be lowered by almost one foot. This will lower levee construction profiles and costs for areas in Sacramento County protected by water diversions to the bypass, as well as for the city of Woodland, as its storm waters drain into the Cache Creek Settling Basin.

### **Davis Improvements**

There are three rail facilities in the city of Davis that would be affected by the project: The California Northern (CNFR) line that runs through the heart of downtown Davis, the Wye at the connection between the CFNR operated line and the Union Pacific main line, and the existing interchange tracks along Second Street, parallel to the UP main line. These three facilities are proposed to be removed by this project.



The project will eliminate at grade rail crossings at 3<sup>rd</sup> Street, 4<sup>th</sup> Street, 5<sup>th</sup> Street and E. 8<sup>th</sup> Street. The removal of the Wye will also allow a connection of 2<sup>nd</sup> Street through what is now a parking area, and the connection of I Street to the new extension of 2<sup>nd</sup> Street. Removal of the rail and the wye will also open approximately 11 acres of downtown Davis property for infill development. Property in the area is valued at approximately \$1 million per acre and could accommodate

development with values of \$6 - 10 million per net acre. Infill development, which could occur on this newly available property, could accommodate as many as 400 infill residential units, or some combination of residential and commercial space, and significant new open space or recreation trails. Development on these properties could total \$60 to \$100 million and generate \$1.5 million per year in tax increment revenue to the city.

Savings for grade crossings in Davis are projected to be \$400,000 over a ten year period following their removal.

### **Woodland Improvements**

Construction of the complete project will allow removal of rail running parallel to East Street from the southern Woodland city limits to north of Beamer Street. This will eliminate ten at grade rail crossings in the city of Woodland. The project will result in at least 25 acres will either be freed up by the track removal or will be enhanced with new access and frontage by the project. Grade crossings at North Street, Court Street, Main Street, Oak Avenue, Cross Street, Pendegast Street, Gum Street, Gibson Road and County Road 24 will be eliminated. In addition to improving traffic flows and eliminating delays at grade crossings, annual maintenance costs for crossings estimated at \$1 million over ten years will be saved.



New access and frontage will be made available to at least four full blocks of developable land, approximately 18 acres. Assuming that redevelopment land sells for \$300,000 per acre in Woodland, total land value is \$4.2 million. In addition, approximately 7 acres worth approximately \$2.1 million would be freed up from the removal of tracks and siding. Development on these properties could be valued at over \$100 million generating \$2 million annually in tax increment revenue to the city.



The complete project will also include new track connecting the Sierra Northern line to the California Northern line north of Woodland. This new connection will enhance rail services to industrial customers in north Woodland and Sugarfield areas. The project will require the relocation of one rail served customer in Central Woodland.

### **West Sacramento Improvements**

Rail service in West Sacramento is essential to the community's varied industrial base and to the Port of West Sacramento. Growth in the community has created a new set of challenges. The Yolo Rail project coupled with the West Side rail relocation will result in the elimination of six at grade rail crossings in the city and will open access to dozens of acres of redevelopment land. In addition, better access to the riverfront redevelopment areas will greatly improve the development potential of these properties. The centerpiece of West Sacramento's redevelopment efforts is the Bridge District along the Sacramento River Waterfront between the Tower and Pioneer Bridges. The Westgate Yard is the single largest remaining challenge for development of the Bridge District, will be relocated as part of this project.



West Sacramento grade crossings that are proposed to be removed include the crossing at Jefferson Blvd north of West Capitol Avenue, E Street, F Street, Riske Lane in the Bridge District, 15<sup>th</sup> Street adjacent to Jefferson Blvd and Jefferson Blvd at Stone Lock. The elimination of rail crossings of Jefferson Blvd (Stone) and one at 15<sup>th</sup> Street, will remove a major safety and traffic challenge for the growing city. The safety issue is great as trucks hauling gasoline from the BP and Shell facilities frequently must stop with the tank across the active rail line at the traffic signal at Jefferson Blvd as they wait to make a right turn to access I-80 to the north.



Redevelopment land in West Sacramento ranges in value from \$500,000 to \$1.5 million per acre. Even assuming values at the low end of the range, the values in West Sacramento would be at least \$15 million for redevelopment land alone. Development value should be expected to top \$150 million and would likely be higher as the land opened by the removal of tracks improves the development potential of these properties.



Elimination of tracks adjacent to Jefferson Blvd will open the opportunity for at least four additional points of access to the emerging 100 plus acre Pioneer Bluffs redevelopment area. These new access points will allow the area to better connect with the existing fabric of the city and will result in a more favorable redevelopment project in the area.

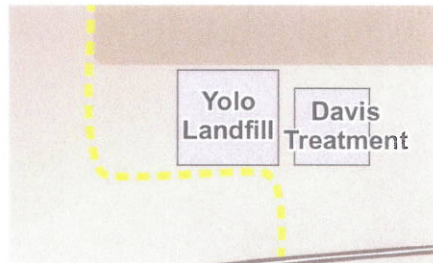


Savings of regular maintenance costs of grade crossings in West Sacramento over a ten year period is calculated at \$700,000. Savings related to improved safety and traffic flow at 15<sup>th</sup> Street and Jefferson Blvd cannot be calculated.

Savings related to the cost of a new grade separation of Jefferson Blvd near Stone Blvd are estimated at \$18.5 million in capital costs.

## Yolo County Improvements

New track is proposed to be constructed that will provide service to the Yolo County Central Landfill. Rail service will provide the opportunity for the Yolo landfill to bring additional waste to the site to improve tipping revenue, provide materials to a waste to energy facility or to transport fuel produced at the site.



## Utility Corridor

The route of the proposed rail line from the west end of the Fremont Trestle along the west edge of the Conaway Ranch, past the Woodland Wastewater treatment facility, the Yolo Central Landfill and the Davis Wastewater Treatment facility provide the opportunity for installation of utilities. The proposed Davis-Woodland Surface Water Supply project will require rights of way for installation of the supply line from the new intake and treatment facility at the Sacramento River. The profile of the new rail line rights of way will provide ample property to allow for the supply lines to be installed within the same right of way. This will save additional funds otherwise required for the acquisition of right of way for the water line.



Cost savings will be realized because approximately 30 acres of land will not have to be acquired for the water line. These cost savings are estimated in the hundreds of thousands of dollars because of extensive costs of public acquisition and potentially condemnation actions that might otherwise be required.

# Yolo Regional Freight Rail Improvement Project

November 2009

Prepared for:  
City of Woodland, City of West Sacramento, City of Davis  
Port of West Sacramento, Yolo County,  
&  
Yolo County Flood Control and Water Conservation District

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## Purpose

The purpose of this paper is to provide an overview of the proposed rail realignment project for reconnaissance level discussions related to project funding opportunities. Although the paper discusses preliminary project benefits and constraints, more detailed analysis will be required to assess alternatives for consideration. The primary goal of the project will be to develop a more efficient freight rail system in Yolo County that maintains or improves existing rail service, while it removes impediments to flood control and redevelopment within the affected cities.

## Background

The Sierra Northern Railway (Sierra Northern) is located in Yolo County, California; and provides rail service between the cities of Woodland and West Sacramento, as shown on Figure 1. The Sierra Northern crosses the Yolo Bypass immediately upstream of the Interstate 5 (I-5) crossing. This trestle predates construction of the Yolo Bypass and flowage easements do not exist on the underlying parcel(s). The trestle has a significant adverse effect on flood stages in the Yolo Bypass in the vicinity of the Cache Creek Settling Basin. This is a result of the trestle having multiple piers, spaced closely together, and a bridge deck that gets pressure flow in large flood events. Debris also accumulates on the structure, further blocking flood flows.

In 1992, the Corps of Engineers raised the levees on the Cache Creek Settling Basin and increased the discharge for the low flow structure. The new location of the low flow structure discharges into the Yolo Bypass just upstream of the trestle. This has resulted in erosion around the piers of the trestle and presents a long term maintenance liability for the California Department of Water Resources (DWR) and Sierra Northern Railway.

In the City of Woodland, there are two railroad companies; Sierra Northern that runs east/west through the eastern portion of the City and perpendicular to the downtown area, and California Northern Railroad (Cal Northern) in the downtown area. The Cal Northern line currently acts as a switching yard and handles freight. Sierra Northern performs switching, handling, and storage of both non-hazardous and hazardous cargo railcars. There are 16 combined at-grade crossings for the two lines; and trains can block these crossings for up to 20 minutes, having a significant adverse impact to emergency response activities by the police and fire departments. Removal and/or relocation of portions of these rail lines will remove significant traffic constraints within the City and create commercial and industrial development opportunities in downtown Woodland and the industrial area in the northeast quadrant of the city. Removal or relocation of the Cal Northern switching yard will also reduce the public safety threat by relocating many of the rail operations away from more densely populated areas.

Rail operations present similar challenges in the City of West Sacramento and the Port of West Sacramento. Construction of a new interchange track will remove the need for the Sierra Northern–Union Pacific Railroad (Union Pacific) double-diamond crossing of Union Pacific's main line tracks between Sacramento and Oakland and the track from those diamonds to the connection point with the Port-UP track. Alternatives for the location and details of the new interchange would be developed in a more detailed study of the proposed project. This analysis

would also explore options for an improved crossing at Olive Drive in Davis. The existing UP-SN Westgate interchange yard in West Sacramento will be less utilized due to the alternate interchange in Davis for rail traffic bound for Woodland.

In the City of Davis, the existing California Northern line runs through residential areas and the commercial core area, until it connects with the Union Pacific line at the SP Depot. There are five at-grade road crossings (2nd, 3rd, 4th, 5th, and 8th Streets), an at-grade crossing into the SP Depot parking lot at the “triangle”, an elevated road crossing at Covell Boulevard, and a bicycle undercrossing east of Community Park.

Relocation of the rail line to pass through the Yolo County landfill may also provide opportunities for rail-haul municipal waste transport and rail-haul of combustible energy created by converting landfill waste as part of the clean and green technology in Yolo County.

## **Project Description**

The proposed project consists of relocating the existing Sierra Northern rail route to the west side of the Yolo Bypass along the western perimeter of Conaway Ranch to the Union Pacific mainline that is located on the north side of Highway 80 (Hwy 80), with a connection point just east of Davis. This will allow for the removal of the trestle that crosses the Yolo Bypass at I-5 and will lessen the existing rail interchange traffic with Union Pacific in West Sacramento by improving the interchange yard just east of the City of Davis. Sierra Northern’s rail service within West Sacramento would be provided by stationing rail equipment in West Sacramento to handle interchanged railcars. Additionally, the project will consist of improved roadway crossings, three miles of railcar interchange yard improvements, and grade separation at an existing crossing in West Sacramento. The project would also eliminate major rail freight traffic through the residential/commercial areas of the communities of Davis and Woodland by constructing new trackage that facilitates rail freight movements through areas with appropriate land use for freight rail movements. This would require a trackage rights agreement between Cal Northern and Sierra Northern to establish fees and maintenance responsibilities for the trackage. Existing railcar interchange is reduced in the Bridge District of West Sacramento, furthering redevelopment planning and reducing traffic congestion associated with railcar switching. The construction of a grade separation at Jefferson and Stone will eliminate traffic congestion and a high risk rail crossing on a major arterial road, as well as facilitate more efficient railcar traffic.

The project also includes reclamation of the “notch” area in West Sacramento as a method of facilitating the rail relocation and additionally allows for expansion of the City’s industrial area.

The project, which includes installation of approximately 18 miles of new track northeast of Woodland and in the Conaway Ranch west of the Yolo Bypass, allows for both Cal Northern and Sierra Northern railcar interchange with Union Pacific to occur by either improving the existing interchange or construction of a new one east of Davis. Cal Northern would then operate on the new Sierra Northern track, circumventing the core business district of Woodland under a trackage rights agreement.

Additionally, a new grade separation is constructed at Stone and Jefferson Boulevard in West Sacramento to eliminate vehicle traffic delays from train crossings into the Port and the adjacent industrial area until Phase II can be implemented. These improvements will eliminate the need for the Union Pacific-Sierra Northern Westgate interchange track in the West Sacramento Bridge District (Triangle).

The future rail improvement (Phase II) that will be facilitated by implementation of this project will be the installation of new track connecting to the Union Pacific mainline on the west side of West Sacramento and connecting to existing UPRR trackage also on the west side of West Sacramento. This component of the project would include a new railcar interchange to this main line into West Sacramento. This railyard would be constructed on the property between the western side of the existing businesses and the RD 900 Bypass levee. This new interchange track would facilitate handling longer trains into the industrial area and the Port. The most significant aspect of Phase II is that it will include removing the railcar interchange at the West Sacramento Westgate yard, eliminating rail traffic across multiple at-grade crossings in an area under significant redevelopment improvement.

## Project Benefits

### Flood Control

#### Reductions in Water Surface

The project, by removing the Fremont Trestle, results in a significant reduction in water surface elevations in the Yolo Bypass. The greatest benefit is immediately upstream of the trestle, at the Woodland gage near Cache Creek; and is a 0.63 ft decrease in water surface elevation for the 100-year flood event and a 0.70 ft decrease for the 200-year flood. The water surface reduction benefit attenuates to just over 0.1 ft at the Fremont Weir for both flood events. There is an increase of 0.02 ft. in water surface elevation downstream of the trestle at the 100-year flood event and 0.05 ft. at the 200-year flood that attenuates to 0.02 ft at the Sacramento Bypass for the 100-year event and 0.04 ft for the 200-year event.

#### Removal of Constraint for Regional Flood Damage Reduction Projects

The Central Valley Plan of Flood Control and the Bay Delta Conservation Plan are studying opportunities to modify the Sacramento River Flood Control Project to reduce flood damages and restore the ecosystem. Removal of the Fremont Trestle could benefit these projects by removing infrastructure from the floodway and reducing flood stages. In addition, the Department of Water Resources has indicated a desire to study widening of the Sacramento Bypass. The existing rail line crosses the Sacramento Bypass at the Sacramento Weir. Relocation of the rail line would eliminate this rail crossing and reduce the costs of widening the Sacramento Bypass. In addition, removing the railroad line from the downstream levee would benefit flood fighting and maintenance activities and reduce a rail crossing at the main entrance to the City of West Sacramento's Bryte Bend Water Treatment Plant.

### FloodSAFE Yolo Pilot Program

The floodSAFE Yolo Pilot Program partners - City of Woodland, Yolo County Flood Control & Water Conservation District, and County of Yolo - are coordinating with the U.S. Army Corps of Engineers and DWR to investigate the feasibility of implementing a Cache Creek/Cache Creek Settling Basin flood risk reduction project. The conceptual solution that appears to be the most feasible and supported locally is one that aims to recover flood conveyance capacity over land that is now located within the Cache Creek Settling Basin. This conceptual solution involves the construction of a floodway through, or potentially adjacent to, the Settling Basin that would discharge into the Yolo Bypass in the vicinity of the Fremont Trestle.

The proposed relocation of the Sierra Northern would be beneficial to the conceptual solution envisioned for reducing the risk of flooding to the City of Woodland from Cache Creek. Relocation of the Sierra Northern, and removal of the railroad trestle and approximately two miles of railroad track immediately west of the Yolo Bypass, would accomplish or facilitate the following:

1. Lower flood stages in the Yolo Bypass as a result of removing the railroad trestle that will increase the “head” available to convey floodwater through the proposed floodway.
2. Facilitate rehabilitating the “pre-1993” Settling Basin south levee to obtain accreditation by FEMA.
3. Facilitate relocating the “pre-1993” Settling Basin south levee to create a floodway outside the Settling Basin.
4. Facilitate integrating environmental enhancement and recreational features with flood risk reduction projects as outlined in the Yolo County Integrated Regional Water Management Plan.

## **Transportation**

### Increased Transportation Efficiency

Locating rail traffic, rail interchanges, and rail car storage areas away from residential/commercial areas facilitates more efficient, and thus cleaner and safer, railcar switching and through traffic. New grade separated crossings allow for unimpeded, simultaneous rail and vehicular traffic flows, increasing both rail and commercial vehicle transportation efficiency.

### Public Safety

Relocation of railroad traffic and storage from high population areas and elimination of a total of 22 at-grade crossings (5 in Davis, 16 in Woodland, and 1 in West Sacramento) will reduce the risk of train versus vehicle/pedestrian collisions, will improve emergency vehicle response times, and will relocate rail storage away from densely populated areas in Woodland.

### Decrease in carbon emissions

Elimination of existing trackage through the communities will reduce vehicle traffic congestion and associated air emissions, improve traffic safety by eliminating numerous at-grade rail crossings, create opportunities for additional bicycle and pedestrian corridors, and provide additional opportunities for rail transport where not currently available. Additionally, the project would bring the community into greater compliance with Climate Action Registry goals.

## **Economic Development and Redevelopment Impacts and Benefits**

### Downtown Woodland

The relocation of freight rail traffic and the removal of railcar interchanges will remove a tremendous blight and eyesore from the Downtown Core area. The Downtown Specific Plan, the Woodland Redevelopment Agency Plan, Implementation Plan, and the East Street Corridor Specific Plan have all identified this area as a target area for redevelopment to a commercial/residential use compatible with the Downtown and pedestrian oriented traffic.

### Woodland Industrial Area

An element of the project that would be studied in more detail during the next phase of investigation includes an evaluation of the current businesses that are served by the existing rail line, along with business that could be served by a new line. This would include an evaluation of removal of the Armfield boxcar storage area and the possible development of intermodal transfer station, relocation of SVHRR, and expansion of the Sacramento River Train. The project will provide greater efficiencies in serving the Woodland Park Specific Plan area, consisting of more than 800 acres of undeveloped land for future industrial and commercial uses, in addition to improved tracks in the older parts of the industrial quadrant of Woodland. There will also be better opportunities for development of a HUB Zone (subset of World Trade Zone) and CA State Enterprise Zone and strengthen the basic marketability of Woodland land, given its proximity to all major road, rail, and waterways.

### Port of West Sacramento/West Sacramento

The separation of rail freight traffic from residential/commercial development also allows for greater freight traffic utilization of the Port of West Sacramento for regional and national economic benefits. The project will also relocate track in the City of West Sacramento Bridge District and facilitate reclamation of land in the "Notch". Both of these redevelopment areas are considered significant in the City of West Sacramento's master plan.

### City of Davis

Relocation of the rail freight traffic and rail line presents opportunities for more commercial and residential development in Central Davis and the Downtown area that could act as a catalyst for redevelopment of adjoining areas.

### Abandoned Rail Lines

Relocation of existing rail lines creates the opportunity for reuse of right-of-way for an alternative transit corridor or other transit related improvements between Davis and Woodland, consistent with the E-Trans plan. The next phase of investigation will include an evaluation of the opportunities presented by the portions of the rail line that would be abandoned as part of the proposed project.

## **Project Constraints**

### **New Crossing of Interstate 5**

The Sierra Northern currently runs parallel to, and on the north side, of Interstate 5 until east of the current trestle and Yolo Bypass. The current proposal to cross I-5 is to utilize a previously existing railroad undercrossing of I-5 (the railroad line was abandoned in the 1980s and is currently an improved dirt road) that is located at the land side toe of the Yolo Bypass west levee. A more detailed evaluation of this crossing, and other alternatives, should be conducted in the next phase of study.

### **Hydraulic Impacts**

The localized increases in flood stages downstream of I-5 and as a result of reclamation of the Notch need to be evaluated to determine their significance. Additional project elements may need to be evaluated to mitigate these impacts.

### **Maintain Existing Service**

The project would impact local service to Pacific International Rice Mill Inc. (PIRMI) and CalWest Seeds near downtown Woodland. Rail service to these businesses would need to be maintained or provided at an alternative business location. Alternatives to accomplish this will be studied in greater detail during the next phase of investigation.

### **Shared Trackage Rights Agreements**

The project would also create the need for several shared trackage rights agreements, which may create the need to mitigate for rights and opportunities that are gained and/or lost. One objective of the proposed project is to ensure that the existing levels of service for the rail lines are maintained or improved.

## **Right of Way**

Although the project will require significant right of way acquisition, there are only a limited number of landholders that would be involved, some of whom have previously been contacted regarding this project.

## **Interested Parties**

The following agencies, utilities, and private parties have a potential interest in the proposed project:

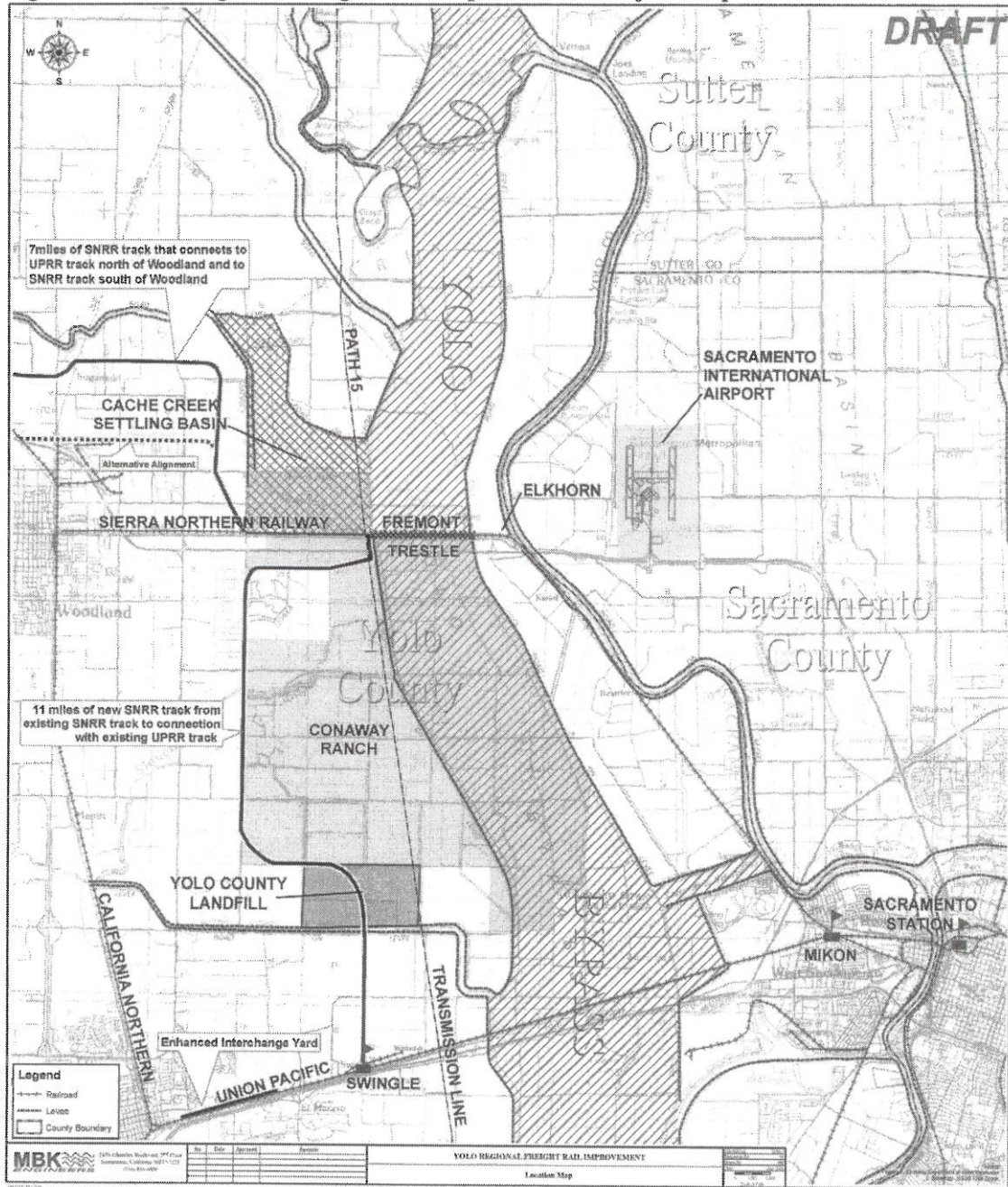
- City of West Sacramento
- Port of West Sacramento
- City of Davis
- City of Woodland
- Woodland Redevelopment Agency (as a financing agent)
- Yolo County Flood Control and Water Conservation District
- Yolo County
- Sierra Northern Railway
- Rail America (California Northern Railroad)
- Union Pacific Railroad
- Conaway Ranch
- Sacramento Area Flood Control Agency
- Sierra Holdings
- Cal Trans
- Department of Water Resources
- Central Valley Flood Protection Board
- United States Army Corps of Engineers
- Public Utilities Commission
- California Department of Fish and Game
- NOAA Marine Fisheries Service
- United States Fish and Wildlife Service
- California State Lands Commission

## **Next Steps**

A more detailed study of the proposed action should be conducted to investigate the issues raised in this paper and develop detailed proposals to address each of the concerns and opportunities.



**Figure 1 – Yolo Regional Freight Rail Improvement Project Map**



# **Appendix A**

# Hydraulic Analysis of the Removal of the Fremont Trestle from the Yolo Bypass

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September 21, 2007  
rev. November 5, 2009

## 1. Purpose and Background

The purpose of this report is to present an evaluation of the hydraulic impacts of removing the Fremont Trestle on the 1-in-100 and 1-in-200 Annual Exceedence Probability (AEP) water surface elevations in the Yolo Bypass and Sacramento River.. The Fremont Trestle runs east-west across the Yolo Bypass just north of Interstate 5. Figure 1 shows the location of the Fremont Trestle and its surrounding area.

*Note: AEP is the probability that a flood event of the specified magnitude will occur in a given flood season. Thus, the 1-in-100 AEP flood event has a 1-in-100 chance of occurring in a given year.*

## 2. Hydraulic Model

The MBK version of the Sacramento and San Joaquin River Basins Comprehensive Study (Comprehensive Study) Sacramento River UNET model adopted for the Natomas Levee Evaluation was used for this analysis. UNET is a one-dimensional unsteady open-channel flow model with the ability to simulate exchange of flow between river channels and floodplains. The software was developed by and is supported by the U.S. Army Corps of Engineers (USACE) Hydrologic Engineering Center. The downstream boundary of the Comp Study UNET model is the Sacramento River at Collinsville, and the upstream boundaries on the major rivers are:

- Sacramento River Woodson Bridge (River Mile 215.5)
- Feather River Thermalito Afterbay Outlet (River Mile 58.6)
- Yuba River Englebright Lake (River Mile 22.0)
- Bear River Wheatland Gage (River Mile 12.5)
- American River Fair Oaks Gage (River Mile 22.0)

Figure 1 shows the model cross-sections within the affected areas.

## 3. Hydrology

The USACE, as part of the Comprehensive Study, developed input flows for the Sacramento River Basin UNET model for a number of storm centerings designed to stress the system at various locations. Previous hydraulic analysis has shown that the storm centering that produces the highest water surface elevations in the project area is the Feather River at Shanghai Bend centering (Shanghai Centering).

The American River input flow was modified to provide a peak flow of 145,000 cubic feet per second (cfs) for the 1-in-100 AEP flood and 160,000 cfs for the 1-in-200 AEP flood.

#### 4. Levee Performance

The analysis was made assuming no levee failures throughout the Sacramento River system. If a levee was overtopped it was assumed to act as a weir. The analysis also assumed that any levees that are freeboard deficient relative to the 1957 Sacramento River Flood Control Project (SRFCP) design floodplain have been raised to eliminate the freeboard deficiency.

#### 5. Analysis and Results

Two scenarios were simulated and compared: 1) "existing conditions" and 2) "without trestle". The "without trestle" scenario was modeled by removing the Fremont Trestle bridge structure along with almost 400 feet of earthen embankment.

##### Results

The resulting maximum "existing conditions" and "without trestle" water surface elevation profiles for the Yolo Bypass upstream of the Sacramento Bypass are provided in Figures 2 and 3 for the 1-in-100 and 1-in-200 AEP flood events, respectively. Similar figures for the Sacramento River from just upstream of the Fremont Weir to the American River are presented in Figures 4 and 5 for the 1-in-100 and 1-in-200 AEP flood events, respectively. Water surface elevations at significant locations within these reaches are provided in Table 1.

As shown, the largest impact from removing the Fremont Trestle is immediately upstream of its location where there is a sharp reduction in water surface elevation (0.63 ft. in the 1-in-100 AEP simulation and 0.70 ft. in the 1-in-200 AEP simulation). The probability of a levee failure on the Yolo Bypass upstream of Fremont Trestle would be reduced, if the Trestle were removed. This water surface reduction provides a benefit to the areas adjacent to Interstate 5 (I-5) immediately to the east and west of the Yolo Bypass, since a levee failure upstream of the Trestle would result in the inundation of I-5 with flood waters.

Moving upstream, the water surface reduction tapers down to just over 0.1 ft. at the Fremont Weir in both flood events. There is a slight increase of no more than 0.05 ft. in water surface elevation within the Yolo Bypass downstream of the Trestle due to the increased hydraulic efficiency of the Yolo Bypass, and thus, increased flow rate in the Bypass without the Trestle. The impact to the Sacramento River from the removal of the Fremont Trestle is greatest near the Fremont Weir with a water surface decrease of about 0.1 ft. and is essentially no change at the Sacramento Weir.

Table 1. Impact to Maximum Water Surface Elevation of Removal of Fremont Trestle (all values in feet-NGVD29)						
Location	1-in-100 AEP			1-in-200 AEP		
	Existing	Modified	Impact	Existing	Modified	Impact
<b>Yolo Bypass</b>						
d/s Fremont Weir (57.15)	38.90	38.78	-0.12	40.28	40.15	-0.13
at KLRC (54.44)	35.27	34.92	-0.34	36.66	36.27	-0.39
at Woodland Gage (51.10)	33.00	32.37	-0.63	34.39	33.69	-0.70
at I-5 (50.82)	32.04	32.07	+0.02	33.35	33.40	+0.05
at Sac Bypass (45.02)	29.27	29.28	+0.02	30.64	30.68	+0.04
<b>Sacramento River</b>						
at Verona Gage (78.75)	40.88	40.78	-0.10	42.35	42.28	-0.07
at Sac Weir (63.82)	31.29	31.27	-0.01	33.15	33.16	+0.01

*Note: Parenthetical numbers alongside locations are Comp Study river mile station. (See Figure 1 to locate.)*

### Sensitivity to Debris Loading

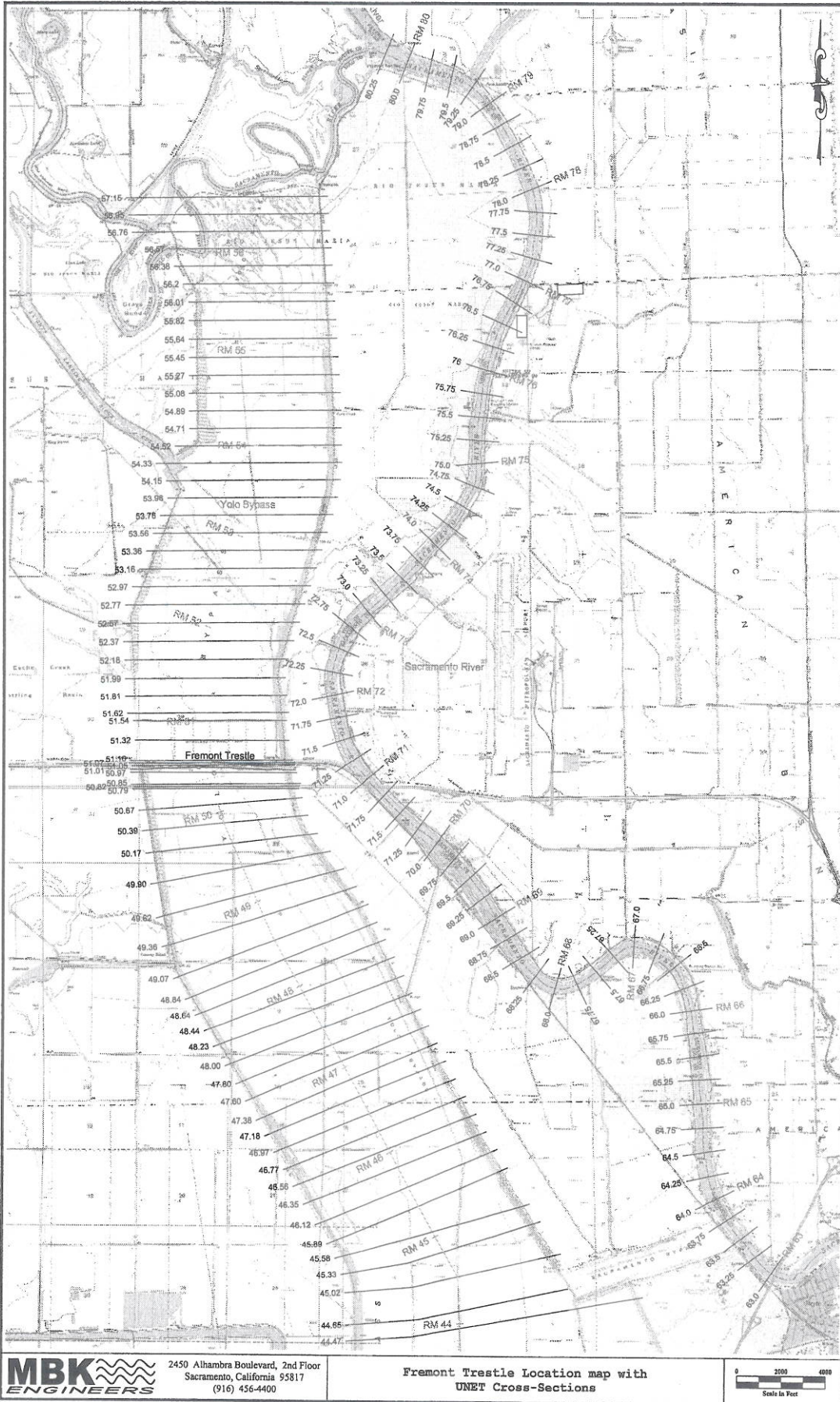
The client described instances of a considerable amount of debris collecting along the Fremont Trestle during larger flow events in the Yolo Bypass. An analysis was performed to evaluate the effect of this type of debris on water surface elevations within the Yolo Bypass and Sacramento River. A hydraulic analysis was made with simulated debris along the Fremont Trestle. As the model software does not allow for the explicit modeling of riverine debris, the debris was simulated by increasing the Trestle's total pier width by 50%. This change represented the additional restriction in the flow path through the Trestle caused by the presence of the debris. The presence of the simulated debris caused a change in the 1-in-100 AEP water surface elevation, as measured versus the "existing conditions" analysis, of no more than 0.02 feet throughout the Yolo Bypass and Sacramento River.

## 6. Conclusions

This analysis demonstrates a significant localized reduction of the water surface in the Yolo Bypass upstream of the Fremont Trestle which would benefit the levee districts in the Yolo Bypass. A smaller, less significant benefit was shown upstream of the Fremont Weir and along the Sacramento River.

## 7. References

United States Army Corps of Engineers (USACE), Sacramento and San Joaquin River Basins Comprehensive Study, California, Technical Studies, Appendix B, Synthetic Hydrology Technical Documentation, December 2002.



**MBK ENGINEERS**  
 2450 Alhambra Boulevard, 2nd Floor  
 Sacramento, California 95817  
 (916) 456-4400

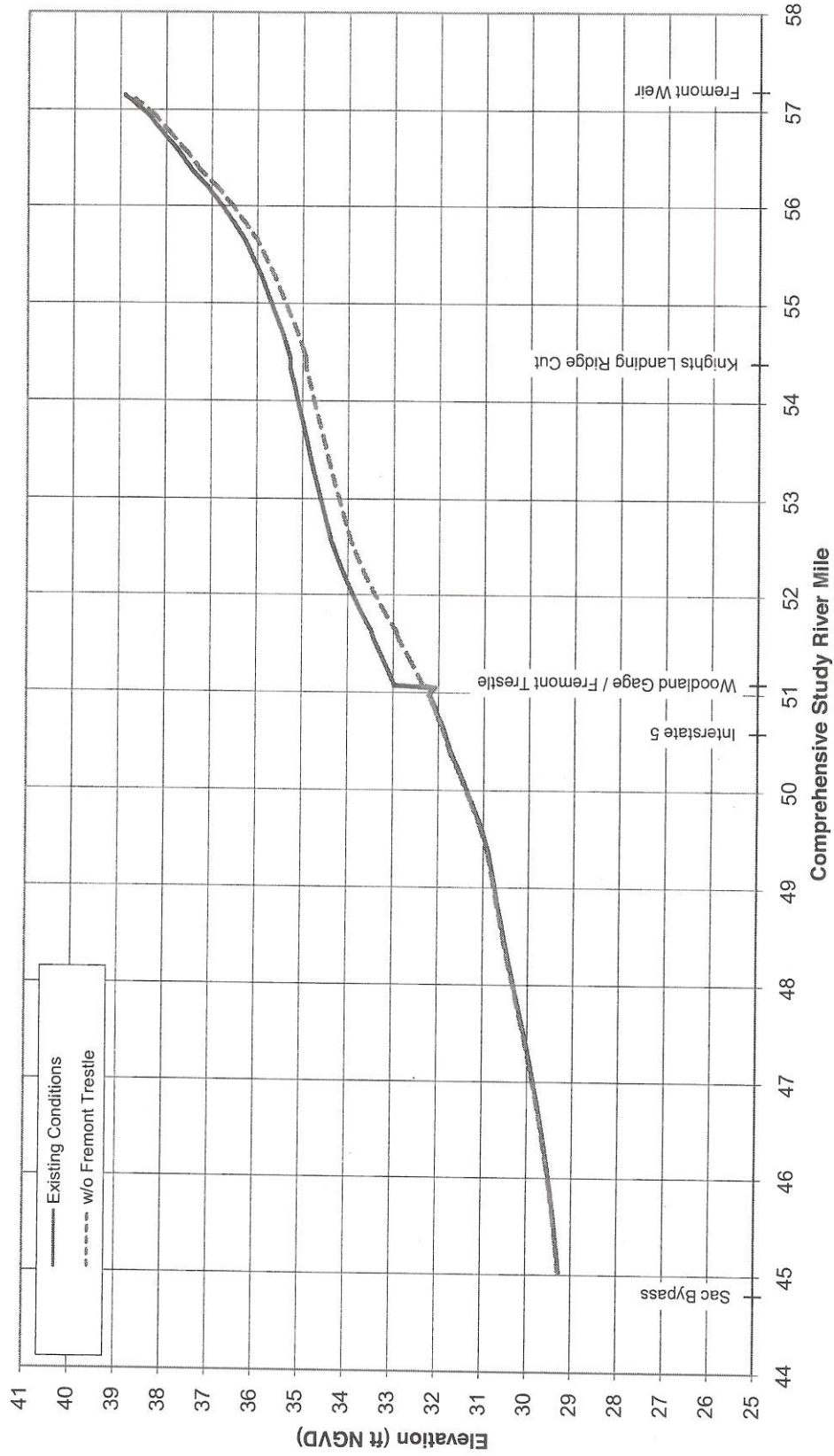
Fremont Trestle Location map with  
 UNET Cross-Sections

0 2000 4000  
 Scale in Feet

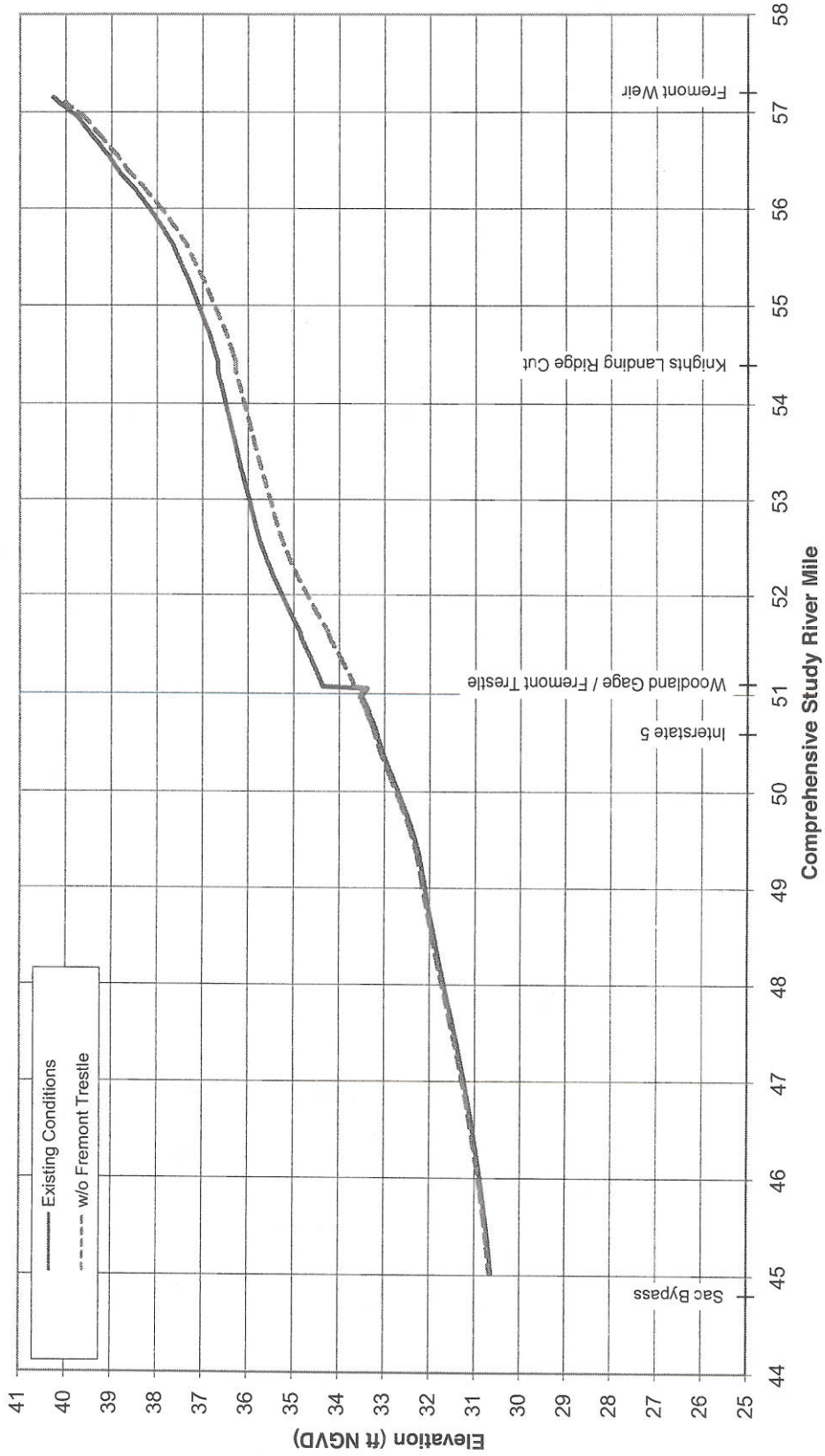
Figure 1



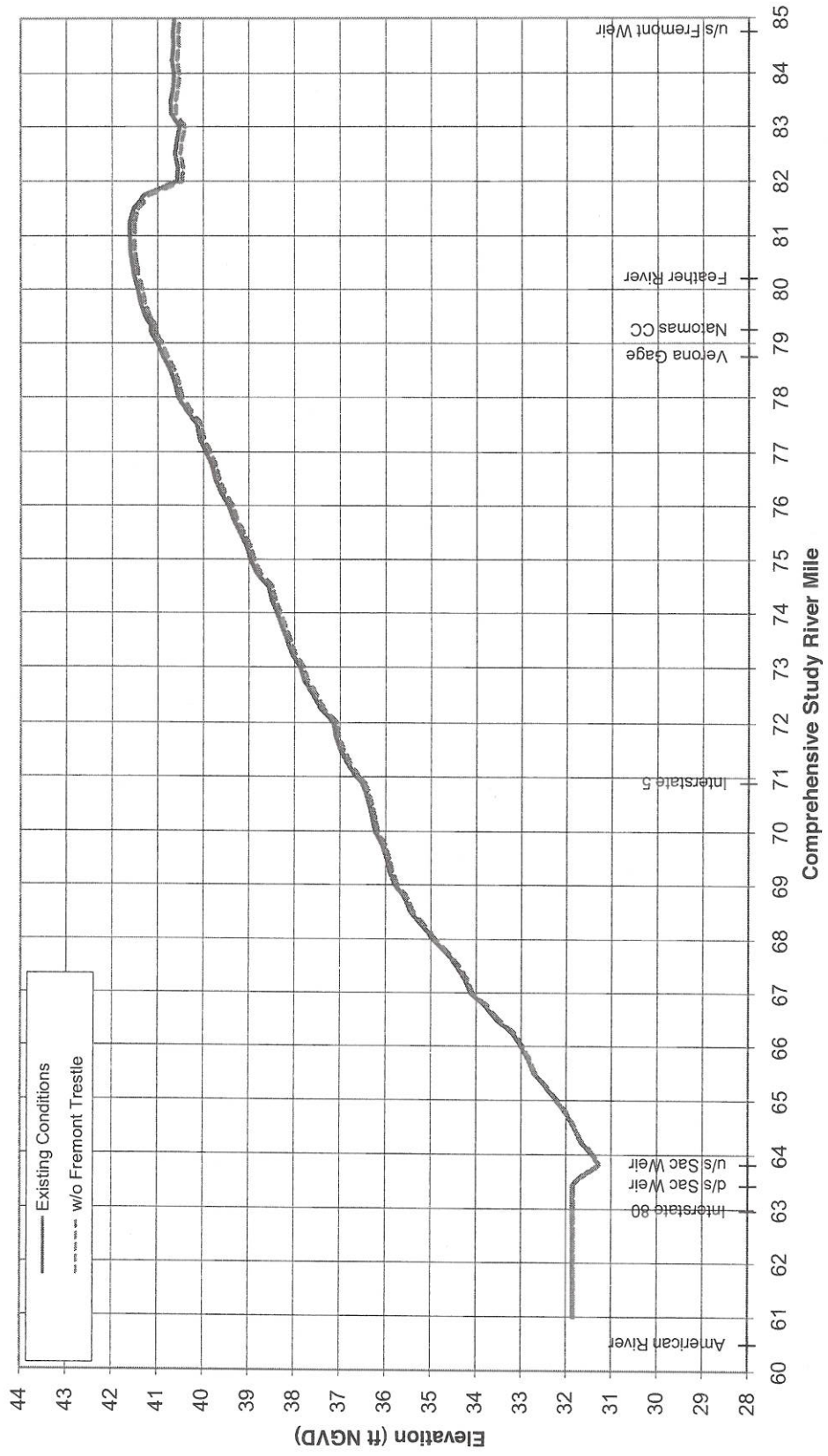
**Figure 2 - Yolo Bypass  
Maximum Water Surface Elevation Profile: 1-in-100 AEP**



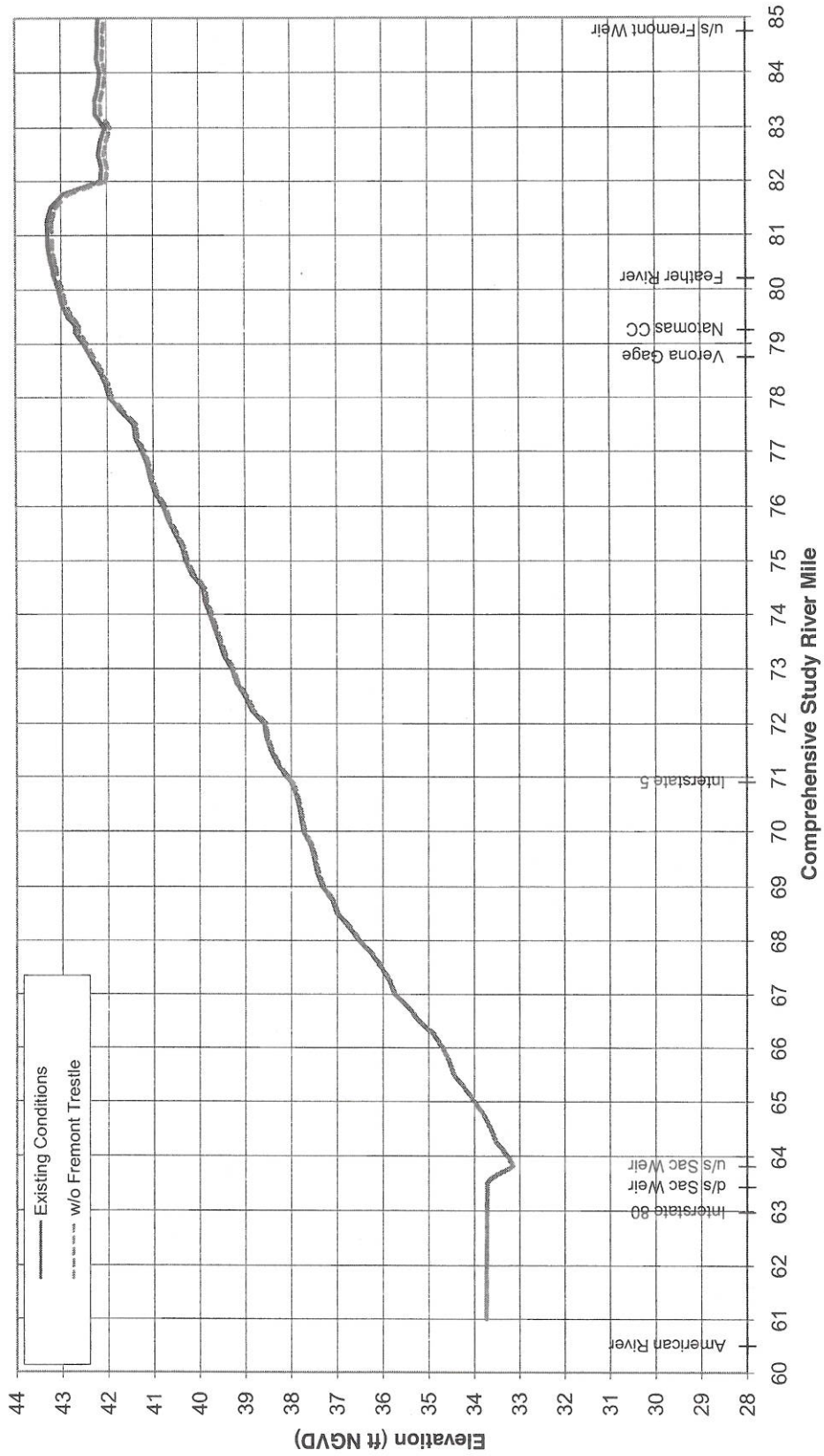
**Figure 3 - Yolo Bypass  
Maximum Water Surface Elevation Profile: 1-in-200 AEP**



**Figure 4 - Sacramento River  
Maximum Water Surface Elevation Profile: 1-in-100 AEP**



**Figure 5 - Sacramento River  
Maximum Water Surface Elevation Profile: 1-in-200 AEP**



## **Appendix B**



*Water Resources • Flood Control • Water Rights*

## MEMORANDUM

**DATE:** September 19, 2008  
**TO:** Vinton Hawkins  
**FROM:** Don Trieu, P.E.  
**SUBJECT:** Hydraulic Impact Analysis of Removal of "West Sacramento Notch"

Sierra Holdings proposes to remove the "West Sacramento Notch" along the east side of the Yolo Bypass between the Sacramento Bypass and Interstate 80. A new levee would be constructed from the west end of the south levee of the Sacramento Bypass to the east levee of the Yolo Bypass at Interstate 80. This memorandum documents the hydraulic analysis to determine potential hydraulic impacts as a result of the proposed project.

### **Hydraulic Model**

The United States Army Corps of Engineers (USACE) has developed a RMA2 two-dimensional (2-D) hydraulic model of the Yolo Bypass "expressly for the purpose of assessing the flood conveyance impacts of proposed land use changes in the Bypass, suitable to California State Reclamation Board (Rec Board) permitting standards" (USACE 2006).

RMA2 is a 2-D depth averaged finite element hydrodynamic numerical model. It computes water surface elevation and horizontal velocity components for sub-critical, free-surface 2-D flow fields.

The USACE Yolo Bypass model was modified by MBK for this analysis as follows. The upstream extent of the model was truncated at the Yolo Bypass at Woodland gage and the downstream extent of the model mesh is at the Yolo Bypass at Lisbon gage. The model mesh developed for this analysis is shown in Figure 1

### **Model Calibration**

The 2-D finite element model was calibrated to the January 1997 flood event. This flood was used because it was a very large flood event, occurred relatively recently and a substantial amount of observed stage and flow data is available. Figure 2 shows the results of the model calibration comparing the computed water surface elevations versus the observed water surface elevations.

### Impact Analysis Methodology

The hydraulic impact of the proposed project conditions was determined by comparing the computed water surface elevations and velocities from a base condition simulation with those from a project condition simulation. The hydrologic condition used for this simulation is the January 1997 flood event.

### Base Condition

The Base Condition used for this analysis corresponds to conditions as they currently exist. The model results of the January 1997 flood calibration will serve as the Base Condition for comparison with Project Condition model results.

### Project Condition

The base condition 2-D finite element mesh was modified to reflect the first project condition. Alternative 1 consists of construction of a new levee from the west end of south levee of the Sacramento Bypass connecting to the east levee of the Yolo Bypass at Interstate 80 (Figure 3). The new levee was simulated in the model by disabling the elements which represented the levee and areas (Notch Area) east of the new levee. The total estimated area of the Notch is 600 acres. Alternative 1 was modified to reflect the second project condition. Alternative 2 consists of the project condition levee in Alternative 1 and an embankment removal from the Southern Pacific Railroad Bridge crossing the Yolo Bypass, shown in Figure 3. Model elements were modified to represent floodplain elevation with bridge piers. The project condition alternatives were simulated using the January 1997 flood conditions and compared with the base condition.

### Results

Figures 4 and 5 plot the maximum water surface elevation along the east and west levee, respectively, of the Yolo Bypass for the base condition, Alternative 1, and Alternative 2. Water surface differences plotted in Figures 6 through 9 used the same alignments as the water surface profiles, shown in Figure 2. Tables 1 and 2 summarize the hydraulic impacts to the Yolo Bypass based on model results. Water surface impacts were greatest in the vicinity of the Notch.

Table 1. East Levee

	Water Surface Impact (ft)	
	Downstream of the Sac. Bypass	Upstream of the Sac. Bypass
Alternative 1	0.3	0.1 to 0.2
Alternative 2	0.2	-0.1

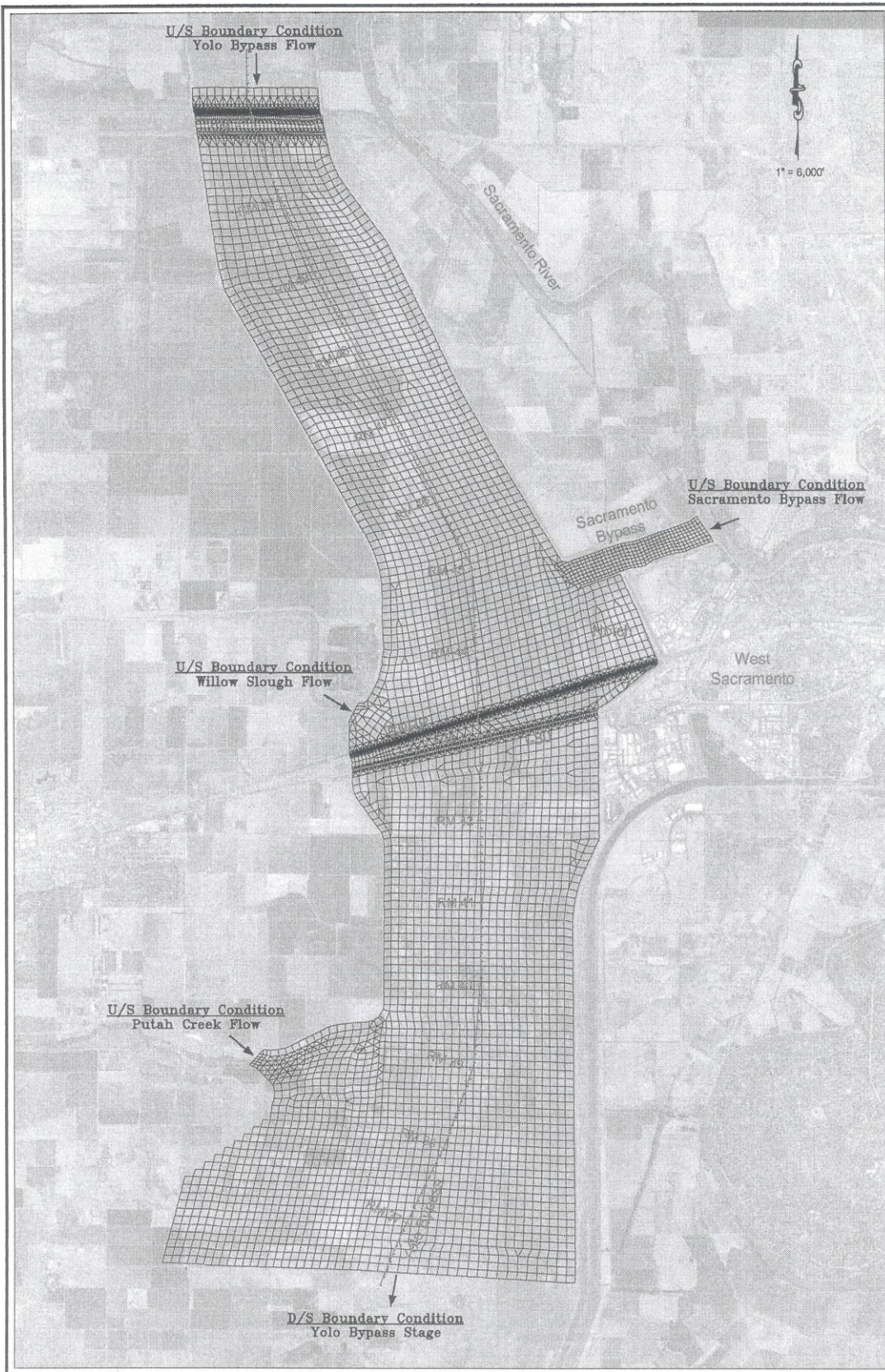
Table 2. West Levee

	Water Surface Impact between SPRR and Interstate 5 (ft)
Alternative 1	0.1 to 0.2
Alternative 2	0 to -0.1

  
Don Trieu, P.E.







<p style="text-align: center;">Figure 1</p>	<p>Sierra Holdings</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">No.</th> <th style="width: 10%;">DATE</th> <th style="width: 10%;">AUTHORITY</th> <th style="width: 10%;">REVISION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	No.	DATE	AUTHORITY	REVISION																																									<p><b>MBK</b> <b>ENGINEERS</b></p> <p>2450 Alhambra Boulevard, 2nd Floor Sacramento, California 95817 Phone: (916) 456-4400 • Fax: (916) 456-0253</p>
	No.	DATE	AUTHORITY	REVISION																																											
<p>SCALE: 1"=6,000'</p> <p>JOB NUMBER: 8055</p> <p>PROJECT: 8055</p> <p>ENGINEER: BR</p> <p>DATE: August 2008</p> <p>BY: [Signature]</p> <p>APP: [Signature]</p> <p>FIG: [Signature]</p> <p>FIGURE: 1</p>	<p><b>Calibration RMA2 Model Finite Element Mesh</b></p>																																														

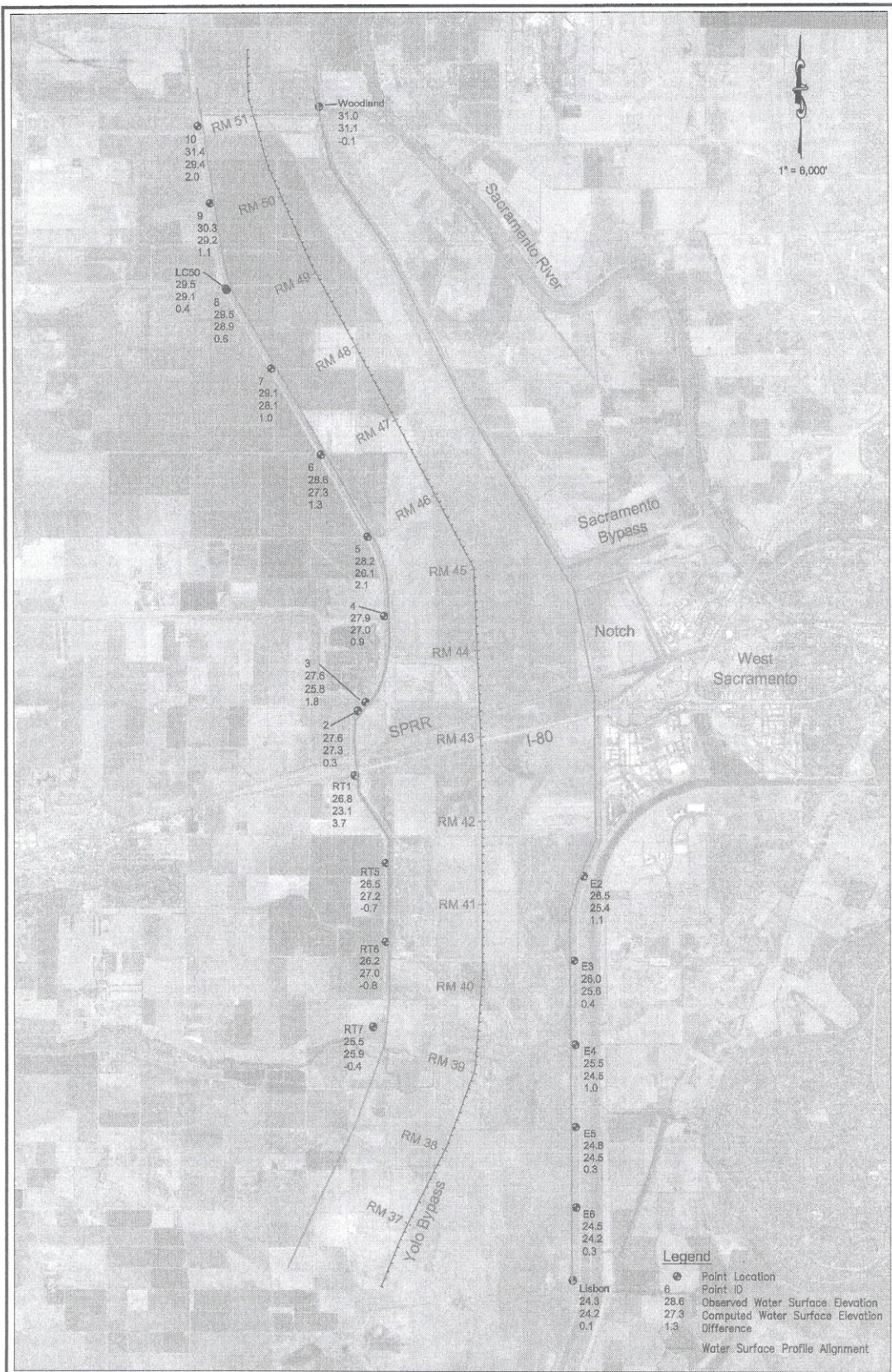
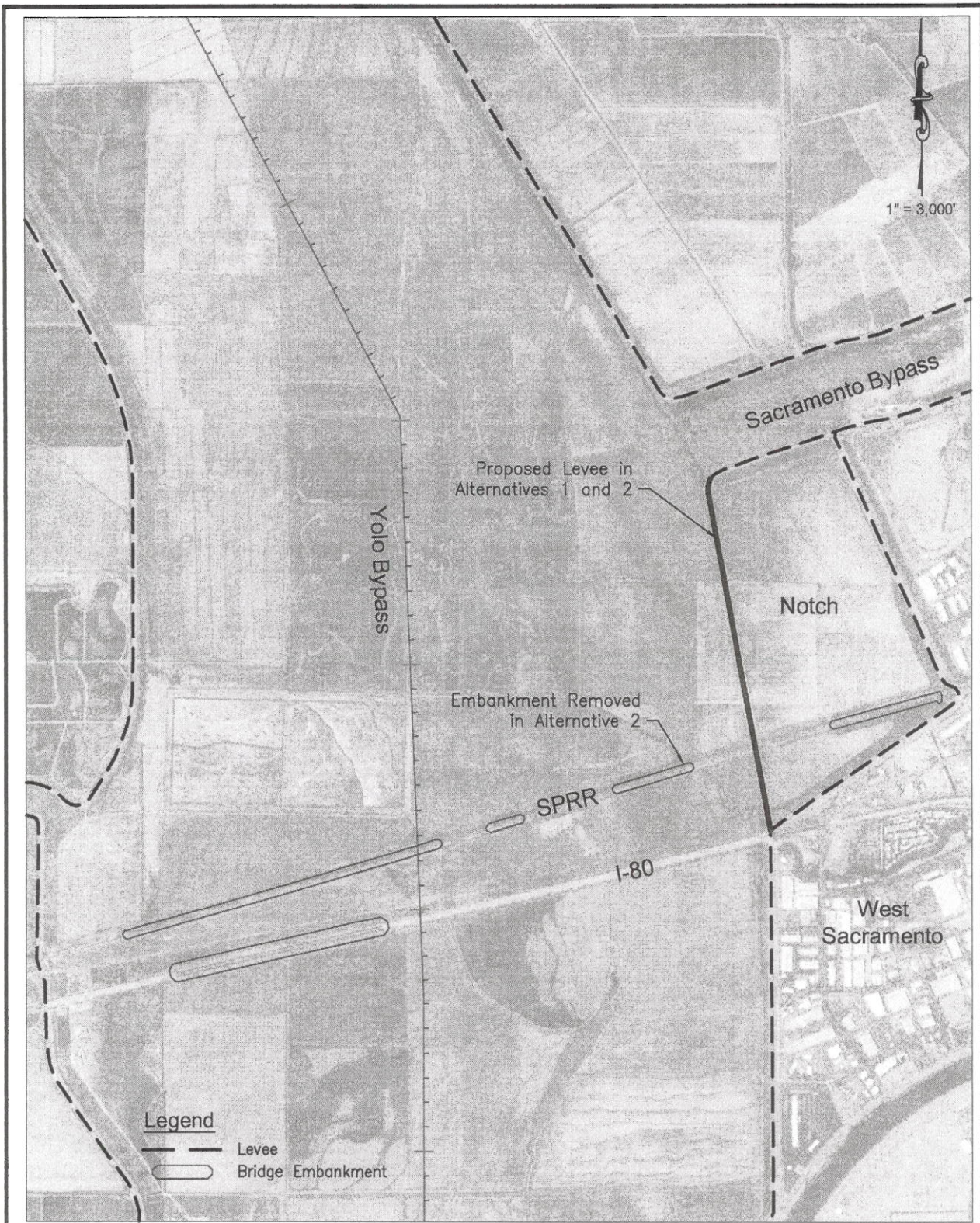


Figure 2	Sierra Holdings  Calibration Results	NO. DATE APPROVED _____ _____ _____ _____ _____ _____	<b>MBK ENGINEERS</b> 2450 Alhambra Boulevard, 2nd Floor Sacramento, California 95817 Phone: (916) 456-4400 • Fax: (916) 456-0253
	SCALE: 1"=6,000' JOB NUMBER: 5005 REQUESTED BY: GJM DRAWN BY: AMARJON DATE: 08/21/09 CHECKED BY: AMARJON DATE: 08/21/09 DESIGNED BY: AMARJON DATE: 08/21/09		



**MBK**  
ENGINEERS

2450 Alhambra Boulevard, 2nd Floor  
Sacramento, California 95817

Phone: (916) 456-4400 ♦ Fax: (916) 456-0253

Sierra Holdings

Site Map

SCALE: 1" = 3,000'  
JOB NUMBER: 5005  
DRAWN BY: GP  
DATE: September 2008

Figure  
3

**Figure 4**  
**Yolo Bypass East Levee**  
**Maximum Water Surface Profile - Project and Base Conditions**  
**January 1997 Flood**

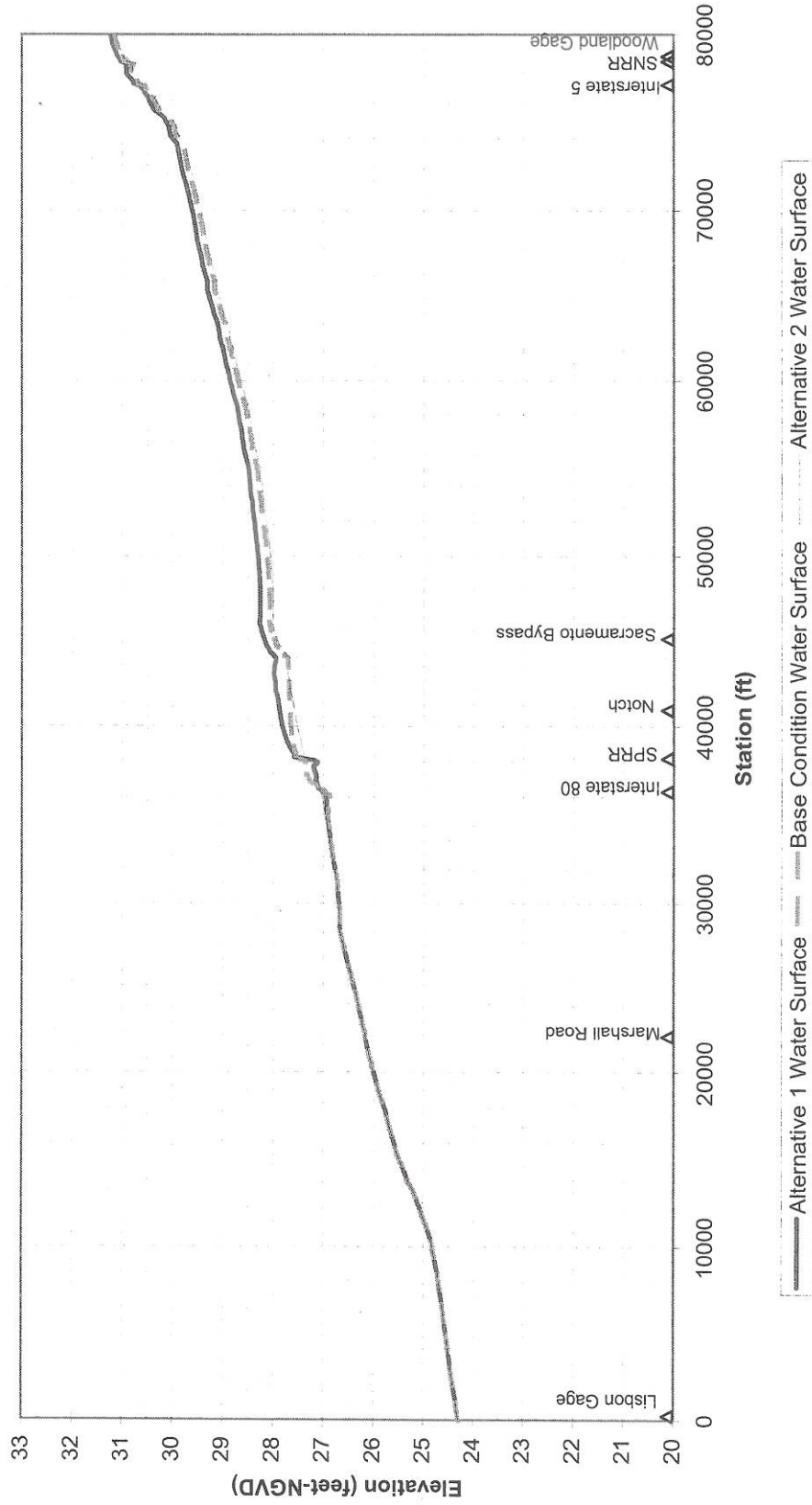
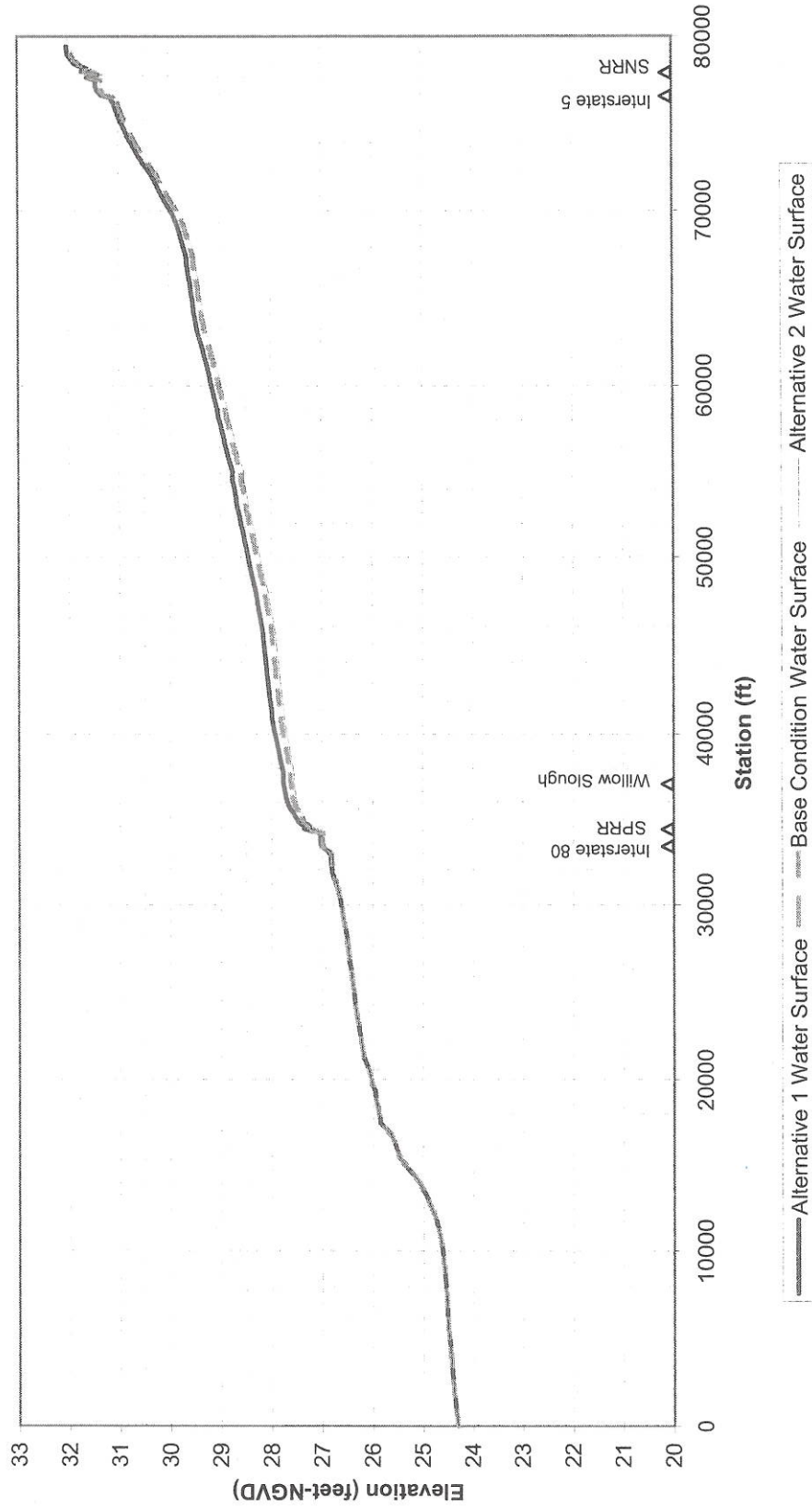
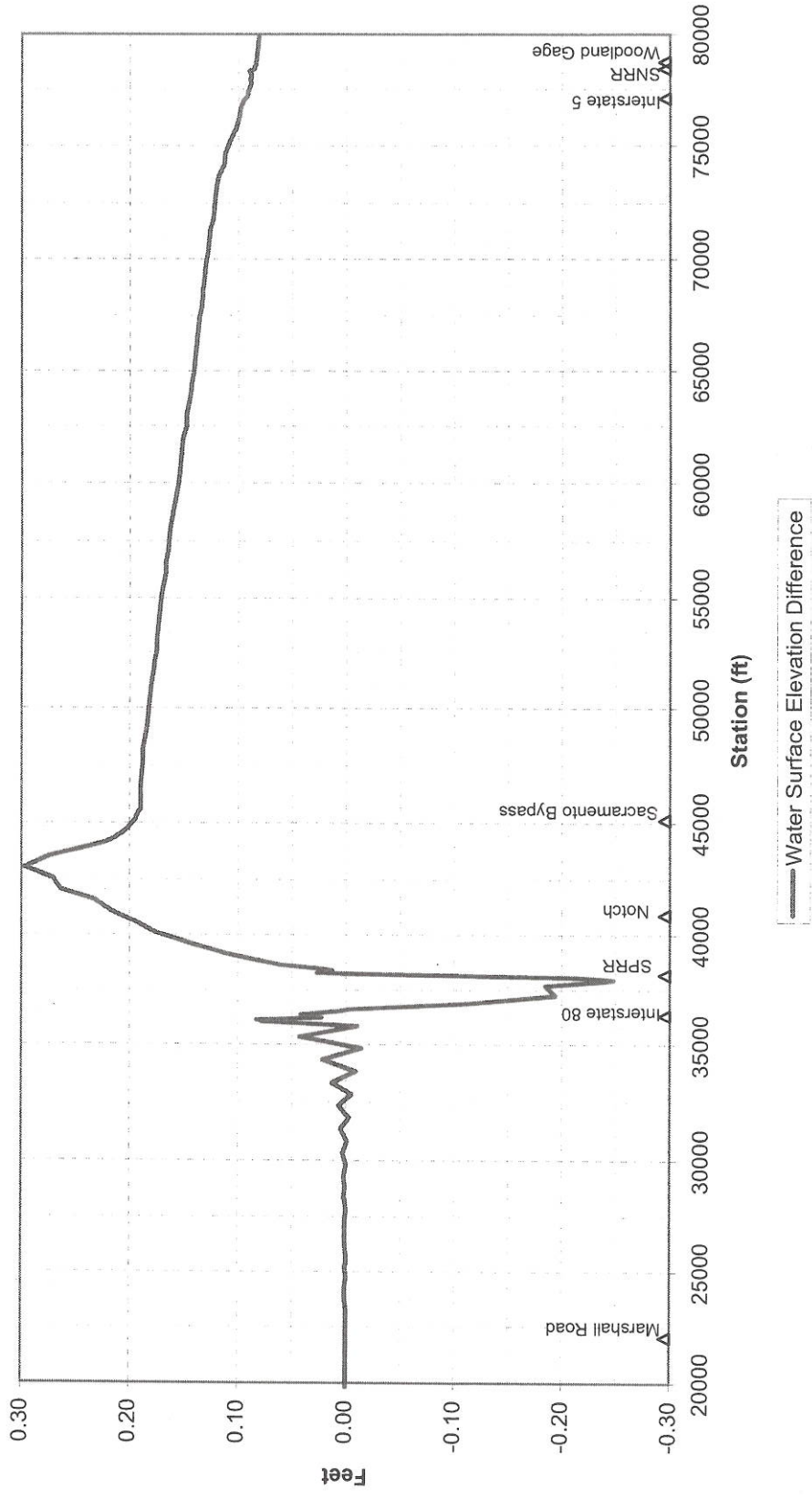


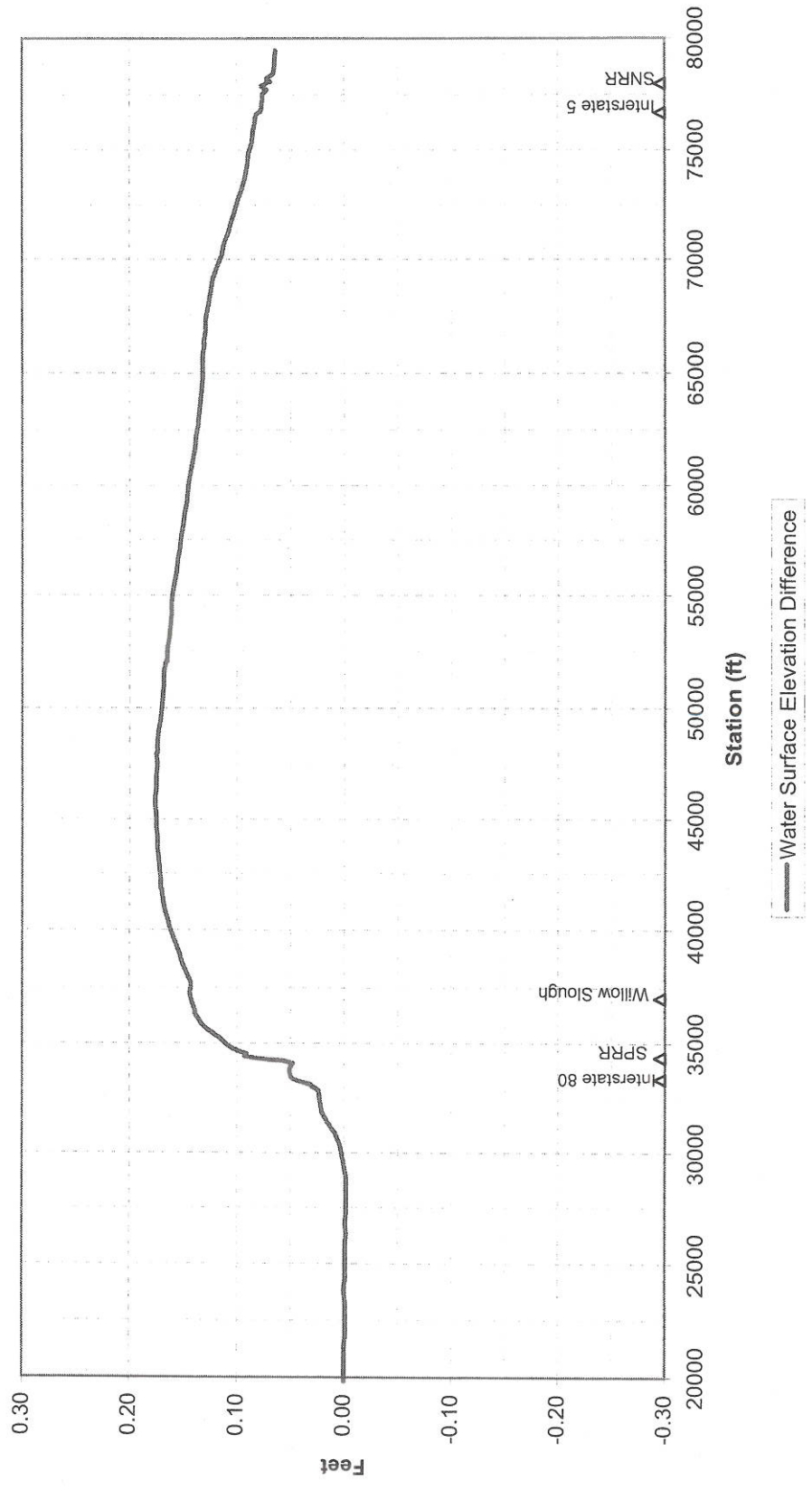
Figure 5  
 Yolo Bypass West Levee  
 Maximum Water Surface Profile - Project and Base Conditions  
 January 1997 Flood



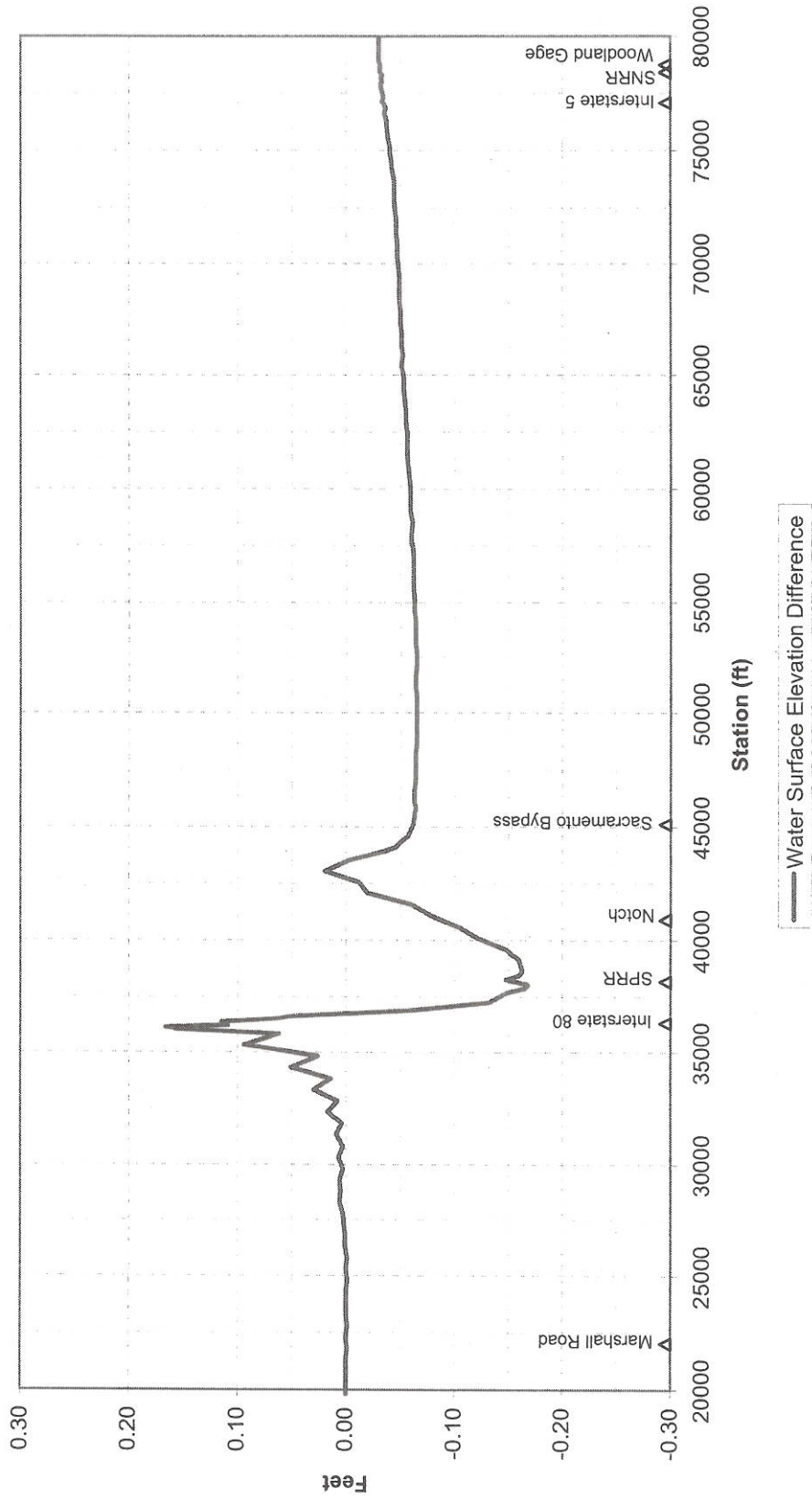
**Figure 6**  
**Yolo Bypass Maximum Water Surface Elevation Difference**  
**Alternative 1 Minus Existing Condition**  
**East Levee**



**Figure 7**  
**Yolo Bypass Maximum Water Surface Elevation Difference**  
**Alternative 1 Minus Existing Condition**  
**West Levee**

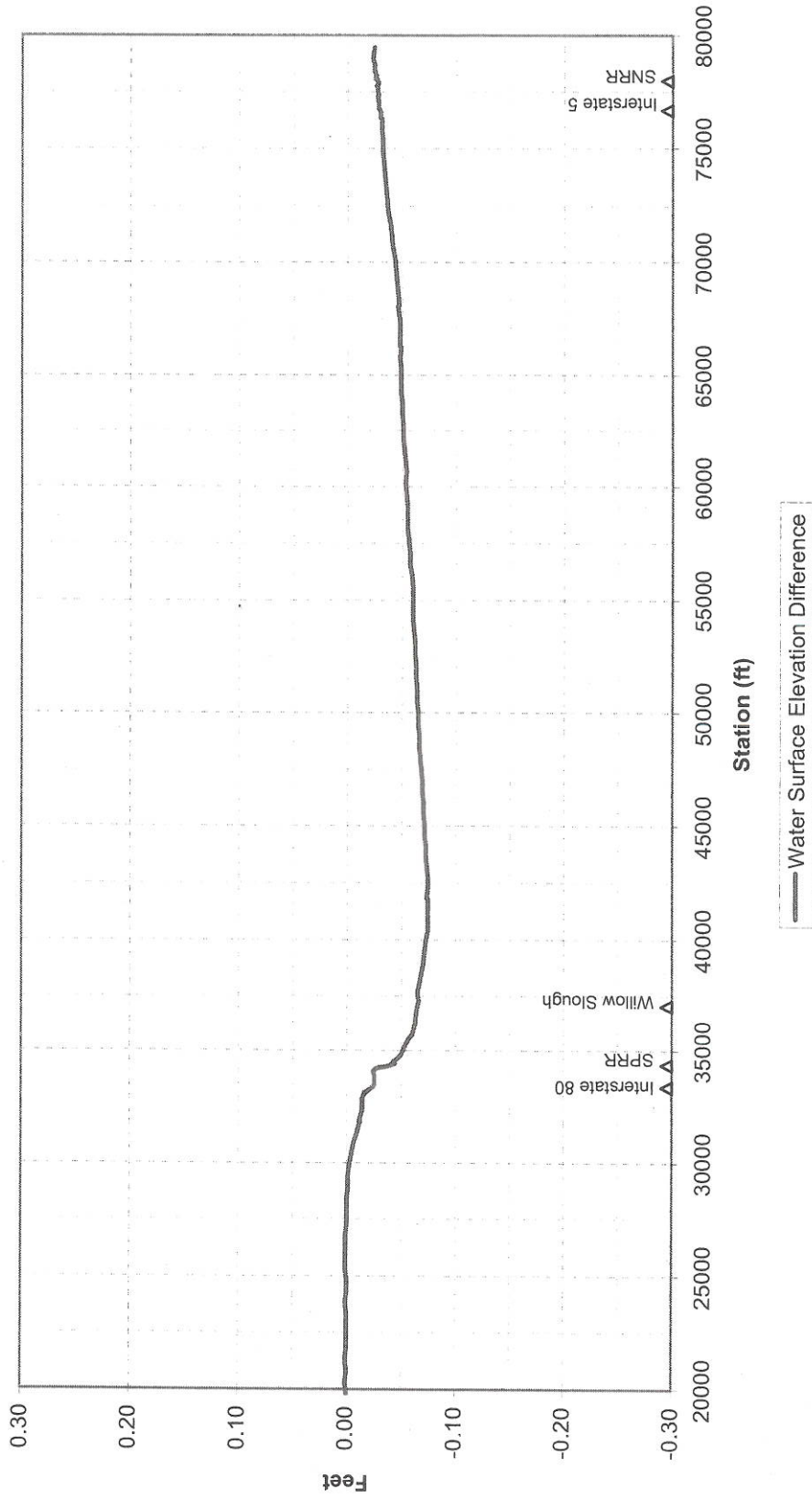


**Figure 8**  
**Yolo Bypass Maximum Water Surface Elevation Difference**  
**Alternative 2 Minus Existing Condition**  
**East Levee**





**Figure 9**  
**Yolo Bypass Maximum Water Surface Elevation Difference**  
**Alternative 2 Minus Existing Condition**  
**West Levee**



**Sierra Northern Railway, Davis, California**

***Response***

***G\_SNR1-01***

The comment references the Bay Delta Conservation Plan and this discussion does not change the analysis or conclusions of the DPEIR. The comment is noted.



## SIERRA NORTHERN RAILWAY

341 Industrial Way  
Woodland, CA 95776-6012  
Tel: 530-666-9646  
Fax: 530-666-2919

February 29, 2012

# G\_SNR2

Ben Carter, President  
Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento, CA 95821

Re: Comments on Draft Central Valley Flood Protection Plan

Dear President Carter and Members of the Board:

G\_SNR2-01

Thank you for the opportunity to provide comments on the Draft Flood Protection Plan. We understand that it is a complex document, with a lot of interrelated parts, that incorporates months of effort. Because of the likely impact of the plan on our region's future, we agree that the plan needs to be as accurate and realistic as possible.

Sierra Northern Railway (Sierra) is a common-carrier railroad that operates approximately 105 miles of track in northern California and is 100% owned by the Sierra Railroad Company, a holding company. Sierra serves a wide variety of customers and interchanges with both Burlington Northern Santa Fe Railway (BNSF) and Union Pacific Railroad (UP).

Sierra owns the Fremont Trestle (the Trestle) that allows a connection between Sierra's operational headquarters, its customers, and the UP interchange in West Sacramento. The Trestle was built more than 100 years ago—prior to the construction of the Yolo Bypass—on railroad-owned land and constitutes an essential part of Sierra's operations. Sierra also owns the land on either side of the Trestle.

G\_SNR2-02

A report by MBK Engineers (the MBK Report)—prepared on behalf of the cities of West Sacramento, Woodland and Davis, Yolo County, and the Port of West Sacramento—identified significant problems with floodwater flows through the Trestle which, among other things, cause water surface elevations to reach their maximum level during major flood events. The MBK Report calculated that water surface elevations north of the Trestle can rise nearly a foot higher than elevations immediately south of the Trestle, as debris and other materials are caught on the Trestle bents and impede water flows.

It is at this point when water flows often put the Trestle at risk of significant damage. The pressure of the water generates movement in the Trestle and forces us to curtail rail traffic across the Trestle and the Bypass. Once waters recede, inspection and repairs are required of both the Trestle and of the area around it (which typically erodes significantly during the high water events), and significant cleanup is required of debris that has collected against the

Trestle. While Sierra has thus far absorbed these cleanup and repair costs, we continue to believe that these costs are the responsibility of users of the Bypass. If more water is released into the Bypass, it will cause more damage to our Trestle and cause it to be unusable more often. These are costs and risks that Sierra is not prepared or willing to absorb.

G\_SNR2-03

The Central Valley Flood Protection Plan, as drafted, appears to ignore the very existence of the Trestle, its impact on water flows through the narrowest point of the Bypass, and the impact of those water flows on our Trestle. Among other problems, the Fremont Weir cannot be widened to allow more floodwaters into the Bypass without first dealing with the problems caused by, and to, the Trestle.

G\_SNR2-04

There is, fortunately, a pending proposal to relocate Sierra's rail line so that the Trestle will no longer be needed. The proposal has the added benefit of allowing the removal of 19 at-grade rail crossings in the cities of Davis, Woodland, and West Sacramento, not only improving traffic flows and safety in those cities, but also freeing up extensive land for city development. It seems appropriate for the Yolo Freight Rail Relocation Project to proceed as part of the Flood Protection Plan, rather than separately from it.

G\_SNR2-05

We look forward to working with the state and others on a Plan that will enhance flood protection benefits for all parties. A fair Plan will allow Sierra to continue to operate in an efficient and cost effective manner without being unduly burdened by flood flow impacts. Such a Plan would also greatly improve water flows in the Bypass and the safety of the region overall.

Please contact us so that we may discuss these matters prior to the planned adoption of the Central Valley Flood Protection Plan in June.

Sincerely,



Dave Magaw, President  
Sierra Northern Railway

Enclosures:

1. Yolo Freight Rail Improvement Project, MBK Engineers, November 2009
2. Yolo Rail Relocation Project Description

**Sierra Northern Railway, Dave Magaw, President, Woodland, California**

***Response***

***G\_SNR2-01***

The comment summarizes Sierra Northern Railway's operations in northern California, states the understanding that the draft CVFPP is a complex document with many integrated parts, and notes that the CVFPP needs to be as accurate and realistic as possible. The comment is noted.

***G\_SNR2-02***

As stated in Master Response 12, the 2012 CVFPP does not include new State policy or guidance for considering hydraulic effects of CVFPP actions such as repairing or reconstructing existing SPFC facilities; the Central Valley Flood Protection Act of 2008 (SB 5) did not require preparation of such a policy. However, the State will continue to develop policies and guidance to support SPFC repair and improvement projects through post-adoption activities, to complement existing State and federal permitting processes. The Board is authorized to review flood management improvement projects for compliance with policies on hydraulic impacts (CWC Sections 8710–8723; CCR Title 23, Chapter 1, Article 3(16)(o)). In addition, DWR and the Board review proposed State-federal flood management projects before they are authorized and determine whether the projects' individual and cumulative hydraulic impacts are mitigated (CWC Section 12585.9). The Board, in collaboration with USACE and DWR, is continuing to develop guidelines related to project-specific hydraulic impacts.

The comment does not raise specific questions or information regarding the adequacy of the 2012 CVFPP or environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the 2012 CVFPP or DPEIR. The comment is noted.

***G\_SNR2-03***

As stated in Master Response 1, the SSIA is a responsible and balanced investment approach to achieve this vision. The CVFPP and its DPEIR do not permit any specific actions to move forward that would be subject to further evaluation under CEQA. The CVFPP does not provide detailed project descriptions or funding assurances, nor does it preclude any future actions that could contribute to flood management goals.

Specific dimensions, capacities, and alignments for expanded and new bypasses have not been determined as part of the preliminary analyses conducted for the 2012 CVFPP. The analyses contained in the 2012 CVFPP are intended to be conceptual only; they were included as a basis for a program-level analysis that would allow broad comparisons of various flood management options. Potential locations and preliminary sizes described in the plan were identified using information obtained from previous studies and through discussions with local agencies and stakeholders.

Considerable additional work will be required before the bypass projects proposed in the plan are approved and implemented. Details about the dimensions, capacities, and alignments of expanded and new bypasses will be refined during post-adoption implementation activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these activities are conducted, the feasibility of proposed bypass elements will be evaluated and opportunities for public engagement and input will become available.

**G\_SNR2-04**

As stated in Master Response 9, three preliminary approaches were used to explore a range of potential physical changes to the existing flood management system and help highlight needed policies or other management actions: Achieve SPFC Design Flow Capacity, Protect High-Risk Communities, and Enhance Flood System Capacity. The SSIA was formulated by assembling the most promising, affordable, and timely elements of the three preliminary approaches to best meet legislative requirements and identified CVFPP goals. The SSIA reflects a balanced and fiscally responsible approach, which will be developed further as DWR completes more detailed studies and designs for site-specific capital improvements and develops other, systemwide flood improvement projects. Based on the analysis of these preliminary approaches used to develop the SSIA, the Yolo Freight Rail Relocation Project would not be included in the CVFPP at this time but could be addressed through regional flood management planning and the two basin feasibility studies. See response to comment G\_SNR2-05 below.

**G\_SNR2-05**

As stated in Master Responses 13 and 14, as part of regional flood management planning, regional plans will be prepared with active participation by regional implementing, operating, and maintaining agencies; local land use agencies (counties and cities); agricultural and

environmental interests; emergency responders; and tribes. This effort will collect on-the-ground information regarding flood risks and needs, identify local and regional improvement projects, assess the performance and feasibility of these projects, and develop plans that reflect the priorities of local entities in reducing flood risks in each of the nine regions identified in the CVFPP. Development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts.

Two basin-wide feasibility studies will be prepared, to refine the major system elements proposed in the 2012 CVFPP (such as bypass expansion and new bypasses) and assess their compatibility with prioritized local projects identified through regional flood management planning. These combinations of system element options and regional elements will form “alternatives” for further evaluation and comparison on a systemwide scale. Stakeholder engagement will be an important and complex component of the basin-wide feasibility studies. It is anticipated that work groups will form to help evaluate and refine physical options for system elements (e.g., bypass expansion and new bypasses), identify implementation challenges, and provide input into the planning process. The feasibility studies will be conducted in close coordination with USACE (and ongoing federal feasibility studies) and local implementing agencies. The draft feasibility reports and any accompanying environmental documentation will be made available to the public for review and comments.

**G\_SSVMS1**

April 17, 2012

Ms. Nancy Moricz  
Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento, California 95821

**SUBJECT: 2012 Central Valley Flood Protection Plan (DRAFT)**

Dear Ms. Moricz:

G\_SSVMS1-01 The Sierra Sacramento Valley Medical Society (SSVMS), representing over 2,300 physicians in El Dorado, Sacramento and Yolo counties, is pleased to provide this letter of support for the initial draft of the 2012 Central Valley Flood Protection Plan.

It is clear from the literature that the Sacramento area is at-risk for a flood disaster such as the one that recently devastated New Orleans. In order to protect the health and safety of the residents in our community, we must commit to adequate flood protection.

Thank you for the opportunity to review the draft plan. We look forward to a final report and the ultimate implementation of the goals set forth in the document.

Sincerely yours,

A handwritten signature in cursive script that reads 'David Herbert'.

David Herbert, MD  
President

cc: Aileen Wetzel, Executive Director  
Donald Lyman, MD, Chair, Public & Environmental Health Committee



**Sierra Sacramento Valley Medical Society**

***Response***

***G\_SSVMS1-01***

DWR and the Board thank SSVMS for its letter supporting the CVFPP, and look forward to continued opportunities for local outreach and support.



**G\_SVLA1**

**Sacramento Valley Landowners**  
ASSOCIATION

P. O. Box 3014  
Sacramento, CA 95812  
April 16, 2012  
916-708-7030

Ms. Nancy Moricz  
Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento, CA 95821

Re: Comments on the Draft Central Valley Flood Protection Plan &  
Draft Programmatic Environmental Impact Report

Dear Ms Moricz:

G\_SVLA1-01

On behalf of the Sacramento Valley Landowners Association (SVLA), I offer the following comments regarding the recently released draft plan for flood control for the Central Valley. SVLA represents the interest of landowners and allied members related to improving flood control facilities, including river bank protection, adequate water supply, and maintaining the agricultural endeavors in Northern California.

SVLA recognizes the importance of a comprehensive system-wide plan for flood protection. We also recognize that there will be limited resources in the future to accomplish the goals set forth in the proposed draft plan. Excessive regulation has made it very difficult to complete projects in a timely manner, thereby driving up the cost of projects.

G\_SVLA1-02

Also, consideration should be given to the following concerns:

- Working with local interests to improve transparency and public outreach is essential if this plan is to be successful. Integrating local input and drawing on the knowledge of those being impacted by the plan would be especially helpful. There needs to be a more comprehensive public outreach program
- Proposing to impact over 40,000 acres of productive land throughout the implementation of the Plan through bypass expansion and setback levee proposals is problematic in terms of the impact to the local economies in these areas. How will these impacts be mitigated? What would be the benefits compared to the costs?

G\_SVLA1-03

G\_SVLA1-04

- It has been the experience of our members that it is very difficult to continue farming adjacent to habitat once it has been established and there are no guarantees that farming in the floodways would be productive in the long term.

G\_SVLA1-05

- There is no mention in the plan related to additional upstream storage. The goal of providing multi-benefit projects is not met.

G\_SVLA1-06

- Flood protection benefits are severely reduced if the intent of this plan is a platform for statewide habitat restoration. Promoting an excess of ecosystem functions that are not used as mitigation for flood projects will increase the cost of actual levee improvements needed to protect local communities.

G\_SVLA1-07

- The Plan should provide a commitment to the rural areas by developing a rural levee program and provide adequate funding. Consideration should be given to protecting facilities (hard points) along the river. An example of where the state has neglected to meet its responsibility in this regard is the flood relief structures and weirs in the area of the M&T Weir Structure where the Big Chico Creek meets the Sacramento River. Taking responsibility and protecting facilities that deliver design flows to the Butte Basin has been ignored by the state. If this Plan is to be successful, there must be confidence from the local communities and affected landowners that the State will in fact meet its obligations.
- Allowing for the continued viability of agriculture is essential. SVLA is a member of the Agricultural Floodplain Management Alliance which was recently established to influence Federal floodplain laws and regulations. The State's commitment to this proposal would be helpful in furthering this issue for the rural areas. The Plan must include a State commitment to also develop a rural levee standard and fund critically deficient rural levee segments, many of which would flood portions of the urban areas.
- Rural areas provide system-wide flood control benefit to the urban areas by serving as de-facto transitory storage for the system in very large flood events. Therefore, rural agricultural areas should receive recognition for its contributions to the system through funding assurances.

G\_SVLA1-08

If we are to have an adequate level of flood protection in the Sacramento/San Joaquin Valleys, there needs to be a local commitment and local confidence in the State actually providing increased flood protection as a primary focus and not habitat restoration. There is a reason this plan has been endorsed by the environmental groups and not by local jurisdictions, affected landowners and taxpayers.

Thank you for the opportunity to comment on the Draft Central Valley Flood Protection Plan.

Sincerely,



Brian Flynn  
President

## **Sacramento Valley Landowners Association**

### ***Response***

#### ***G\_SVLA1-01***

The CVFPP does not propose to change any regulations, but includes elements to streamline the permitting process for flood control projects.

#### ***G\_SVLA1-02***

As stated in Master Response 13, a multiphase public engagement planning process informed development of the 2012 CVFPP and provided many different venues for communicating and engaging with a broad range of partners and interested parties. This extensive public engagement process for plan development, which began in January 2009, involved about 450 people representing public agencies, businesses, interest-based organizations, and members of the public. The process included nearly 300 meetings and more than 40 publications, in addition to development of a public Web site and webinars. A full list of participants and forms of engagement in plan development are available in Attachment 5, “Engagement Record,” in Appendix A, “Central Valley Flood Protection Plan.” The participants in the engagement process assisted DWR in identifying problems, developing CVFPP goals, identifying the range of management actions to consider in the CVFPP, and reviewing and commenting on the draft content of the CVFPP.

Anticipated activities after adoption of the 2012 CVFPP include regional flood management planning, development of basin-wide feasibility studies, and completion of project-level proposals and environmental compliance. These efforts will engage local entities and stakeholders to help identify projects to meet local and regional needs for flood management, refine the conceptual system elements proposed in the adopted plan, and identify specific projects for construction.

As part of regional flood management planning, regional plans will be prepared with active participation by regional implementing, operating, and maintaining agencies; local land use agencies (counties and cities); agricultural and environmental interests; emergency responders; and tribes. This effort will collect on-the-ground information regarding flood risks and needs, identify local and regional improvement projects, assess the performance and feasibility of these projects, and develop plans that reflect the priorities of local entities in reducing flood risks in each of the nine regions identified in the CVFPP. Each plan will also assess proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. Development of regional plans and

formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts. For additional details, see Master Response 13.

**G\_SVLA1-03**

As stated in Master Response 1, the PEIR recognizes that converting current land uses (particularly agricultural uses) to bypass and related uses (such as habitat and recreation) would result in potentially significant and unavoidable impacts, particularly on agriculture, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA). Many commenters expressed the view that such conversions should not occur, and that including such conversions in the SSIA undervalues agriculture as a primary industry in the Central Valley that provides a range of economic, social, habitat, and other benefits. Many commenters also explained that particular lands have been in family ownership for generations, often dating back to the earliest days of statehood. DWR and the Board respect these benefits and the relationships that many individuals have to any lands that might be converted, which are anticipated to be substantial topics during any project-level public engagement processes. However, the DPEIR has adequately addressed the environmental issues at a program level this comment does not raise any no new significant environmental topics or present significant new information.

Several commenters expressed concern regarding the potential for particular properties to be included in a bypass proposal. Concerns were also expressed that preliminary identification of conceptual bypass designs might create a “cloud” over the properties, making it difficult to manage, obtain loans for, or sell those properties. DWR and the Board wish to make clear that the conceptual designs reflected in the CVFPP do not reflect a determination regarding any specific properties, and that the potential involvement of particular properties in any future bypass project is entirely speculative at this time. Potential agricultural land conversions and the resulting effects are discussed further in Master Responses 2 and 3.

**G\_SVLA1-04**

Because the locations of future ecosystem restoration efforts conducted as part of the CVFPP are unknown at this time, the issue of compatibility of ecosystem restoration and adjacent land uses is speculative. Details regarding compatibility of habitat and adjacent land uses will be addressed as needed as plan implementation proceeds. However, there seems to be little potential for meaningful conflicts between habitat created as part of the plan and existing agricultural uses. Where DWR, the Board, or others create habitat, the land would be part of a specific project and owned in fee

title by an appropriate agency to preserve and maintain the habitat. Where this habitat is in an expanded floodway, DWR or another appropriate agency would own the surrounding land in the floodway in fee title, and land would be leased for agricultural production as appropriate. In this circumstance, the habitat would not conflict with continuing nearby agricultural operations owned by a private entity. If habitat were created on the edge of an existing or expanded floodway, typically a levee and associated maintenance easements would separate the habitat from any privately held agricultural land on the landside of the levee, minimizing the potential for conflicts between sensitive species that might occupy the habitat and agricultural operations.

#### **G\_SVLA1-05**

As stated in Master Response 10, DWR recognizes the importance of developing additional water storage capacity in California to support an increasing population, to help compensate for the anticipated loss of snowpack storage as a result of climate change, and to maintain the important role of Central Valley agriculture for the nation and the world. For these reasons, multipurpose reservoir projects will likely continue to be proposed and, if successful, may help to meet needs for flood storage capacity.

However, these proposals face daunting challenges. Despite their benefits, new or expanded reservoirs generally face considerable opposition given their environmental effects, costs, perceived risks, and other factors. Also, environmental laws established mostly in the 1970s now apply to these proposals. Among these laws is the requirement under Section 404 of the CWA that any project affecting waters of the United States can be approved only if it is demonstrated to be the least environmentally damaging practicable alternative. Many other laws also present permitting challenges.

Moreover, to serve as a substitute for floodway conveyance and storage, upstream reservoir capacity would have to be developed throughout the Central Valley watershed. The extreme weather events (i.e., atmospheric rivers) that create the greatest risk of a severe flood are often localized. Floodplain storage protects against floodwaters originating from all upstream areas, but by definition, upstream reservoirs can store only the floodwaters that originate from a particular area or tributary watershed. For example, an increase in the capacity of Shasta Lake would provide little or no benefit in the event of a major atmospheric rivers event focused on the central or southern Sierra Nevada. There is simply no reasonable scenario under which an array of new reservoir projects spread throughout the Central Valley watershed would be feasible and could serve as an effective substitute for floodplain storage. Suitable and feasible remaining sites do

not exist, the costs would likely be prohibitive and the opposition substantial, and environmental permits would be difficult if not impossible to obtain. It would be both speculative and imprudent for the CVFPP to rely on such an approach. None of the comments on the topic have addressed, much less rebutted, the substantial evidence that such an alternative could not feasibly meet the objectives of the CVFPP as directed by SB 5.

Failing to reserve adequate floodway conveyance and storage capacity now would leave future generations with limited options for addressing their flood protection needs. The current generation has benefited from the existing bypass system, and expanding that system would benefit both current and future residents.

As stated in Master Response 10, feasible and cost-effective surface-storage projects could be developed only under specific circumstances, and that even if it is feasible, additional surface storage may not provide meaningful flood management benefits. These factors, combined with the conceptual systemwide focus of the 2012 CVFPP, precluded DWR from identifying specific reservoir storage elements to include in the SSIA at this time. These factors limited the ability to formulate an approach/alternative to include in the PEIR that focused primarily on increasing flood storage. Further, increasing storage alone would not achieve many of the CVFPP goals or fulfill legislative intent, such as improving ecosystem functions within the flood management system or achieving an urban level of flood protection for all urban areas.

Multi-benefit projects may include, but are not limited to, water supply, groundwater recharge, ecosystem improvements, recreation, and improvements to reservoir operation. As stated in Master Response 10, studies conducted for the CVFPP showed that combining bypass expansion, regional levee improvements, and coordinated operations in the SSIA did not result in systemwide hydraulic impacts that would be substantial enough to require including additional surface storage as a hydraulic mitigation measure. However, the plan does not preclude future consideration of new or additional flood storage by State, federal, or local agencies in the regional flood management planning or two basin feasibility studies, or as independent projects. (See Section 3.5.4 in Appendix A, “Central Valley Flood Protection Plan.”) For additional details, see Master Responses 7 and 10.

**G\_SVLA1-06**

As stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities,

including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)).

The SSIA includes the supporting goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time. Under the SSIA, ecosystem restoration opportunities are integral parts of flood system improvements, including projects for urban areas, small communities, and rural-agricultural areas. Integrating ecosystem restoration into these flood protection projects will focus on preserving important SRA habitat along riverbanks and help restore the regional continuity/connectivity of such habitats. In addition, SSIA ecosystem restoration activities may include improving fish passage, increasing the extent of inundated floodplain habitat, creating opportunities to allow river meandering and other geomorphic processes, or other measures that may be identified during post-adoption activities. Potential effects on flood management and channel capacity will be considered during implementation of any ecosystem restoration actions. Post-adoption activities (e.g., regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, State and USACE permitting) will allow for detailed development and review of the conceptual ecosystem restoration targets described in the CVFPP and its attached Conservation Framework.

Appendix E, “2012 Central Valley Flood Protection Plan Conservation Framework,” provides a preview of a long-term Conservation Strategy that DWR is developing to support the 2017 CVFPP Update. The Conservation Framework focuses on promoting ecosystem functions and multi-benefit projects in the context of integrated flood management for near-term implementation actions and projects. The Conservation Framework provides an overview of the floodway ecosystem conditions and trends and key conservation goals that further clarify the CVFPP’s ecosystem goal.

#### **G\_SVLA1-07**

As stated in Master Response 4, State law (SB 5) requires an urban level of flood protection for urban and urbanizing areas within the Sacramento–San Joaquin Valley so that these areas will withstand a 1-in-200-year flood event (CGC Sections 65865.5, 65962, and 66474.5). Under the terms of SB 5, adoption of the 2012 CVFPP by the Board would trigger the schedule of compliance actions required for cities and counties to make findings related to an urban level of flood protection.



However, the CVFPP does not create any new requirements or assurances for levels of flood protection in the Central Valley; the local findings requirements regarding the required levels of protection were established by the State Legislature with the passage of SB 5. Similarly, the plan does not change existing State requirements related to new development in nonurbanized areas, including small communities, which must continue to meet the national FEMA standard of flood protection (per CGC Sections 65865.5, 65962, and 66474.5). This national standard corresponds to the minimum level of flood protection (100-year flood) required for participation in the NFIP, and is consistent with the existing Building Code. The Central Valley Flood Protection Act of 2008 further clarifies that the CVFPP is a descriptive document, and neither the development nor the adoption of the CVFPP constitutes a commitment by the State to provide any particular level of flood protection (CWC Sections 9603(a) and 9603(b)).

The SSIA identifies minimum flood protection targets when State investments are made to protect public safety in urban areas and small communities (protection from 200- and 100-year flood events, respectively). However, the plan acknowledges that State investments alone cannot achieve these targets in all communities without leveraging federal and local funds, and encourages higher levels of flood protection whenever feasible. The SSIA also outlines various State investments that would contribute to improved flood-risk management in rural-agricultural areas, and that are aimed at promoting sustainable rural-agricultural economies without inducing imprudent urban development in floodplains. The SSIA does not target a minimum level of flood protection for State investments in rural-agricultural areas outside of the small communities because conditions and local interests differ from one area to another, and additional regional planning efforts are needed to formulate solutions that meet community needs and State investment priorities. However, the SSIA includes various options for addressing flood risks in rural-agricultural areas, including the following:

- Projects to maintain levee crown elevations for existing rural SPFC levees and provide all-weather access roads for inspection and floodfighting
- Economically feasible projects to resolve known SPFC performance problems, in conjunction with development of criteria for rural levee repairs
- System elements (such as new and expanded bypasses) that would lower water surface elevations within some rural and urban channels

All areas would benefit from State investments in the SSIA to improve residual risk management, such as enhanced flood emergency preparedness, response, and recovery. For additional details, see Master Response 4.

M&T Flood Relief Structure is included among the major SPFC facilities in the *State Plan of Flood Control Descriptive Document*. For SPFC facilities for which the State has maintenance responsibility under the CWC, the SPFC Descriptive Document indicates on page 3-37 that DWR maintains both the State-constructed overbank flow features (M&T and Goose Lake FRS) and the USACE-constructed bank stabilization features of the 1986 Butte Basin Plan. CWC Section 8361(p) refers to “the flood relief structures or weirs and other structures or facilities essential for their proper functioning in the vicinity of the Sacramento River between Big Chico Creek and the north boundary of Glenn County Levee District No. 3.” CWC Section 9110(f) states that facilities identified in Section 8361 (such as those described above) are part of the SPFC.

**G\_SVLA1-08**

The primary focus of the CVFPP is flood protection as mandated by SB5; however, SB 5 also sets legislative direction for the CVFPP to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)). For additional details, see Master Responses 4 and 7.

**G\_UCB1**

College of  
Environmental  
Design **LANDSCAPE ARCHITECTURE**

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20 April 2012

William Edgar  
President  
Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento, CA 95821

Dear Mr. Edgar and Members of the Central Valley Flood Protection Board,

G\_UCB1-01 Thank you for the opportunity to submit comments on the Draft of the Central Valley Flood Protection Plan. We applaud the progressive step by the state of California and DWR to begin to address California's flood risk in a comprehensive and systematic way. While there are many positive features of the Plan, our brief comments today draw attention to an aspect of the plan that must raise serious concerns for Californians:

*Increasing flood protection in urban areas to a 200-year standard without additional measures or limits to growth for urban areas will likely induce urbanization and increase flood risk to life, property, and to the State of California. The CVFPP Life Risk Analysis incorrectly indicates the opposite—that the SSIA will reduce risk.*

Where new dense development would otherwise be prohibited, Figures 3-1 and 3-2 of the Plan show vast areas of land (in green) that will be 'protected' by 200-year urban levees and subsequently open for dense development under the State Systemwide Investment Approach. This means thousands more residents in places like Yuba City and Marysville on lands that are still vulnerable to floods exceeding a 200-year event. The risk of being flooded by floods larger than the 'design flood' is known as *residual risk*. The residual risk of being flooded even if 'protected' by 200-year levees is still remarkably high: Over a 30 year period (the typical length of a mortgage), there is a 14% chance of being flooded. Over a period of 100 years, a 39% chance. These are the probabilities of being flooded only from larger floods overtopping the 200-year levee. The risks are actually much higher because the levees could fail from shaking in earthquakes or other failure causes.

It is commonly observed that, "There are two types of levees: those that have failed and those that will fail" (ASFM 2005). Levees only reduce the *probability* of a flood in a given year. Thus, it is important

to anticipate and plan for the eventual failure of the levees. The flooding that results from levee failure is characterized by a sudden rushing wall of water, provides little warning, and conveys sufficient force to pull buildings from foundations, sweep people off of their feet, and damage critical infrastructure. While Hurricane Katrina raised public awareness of flood risks, the images from the flood may make Californians underestimate the impact of flooding here. In New Orleans, we saw images of men calmly wading through flooded streets, pushing rafts, which they could do because water temperatures were about 80°F. When the levees fail in the Sacramento Valley, water temperatures will be around 40°F. Exposure to such cold water will bring swift hypothermia and death.

Our review of the CVFPP Attachment 8G- Life Risk Analysis indicates that DWR may have drawn misleading, convoluted conclusions that indicate the SSIA reduces risk, when in fact, this strategy actually increases risk.

The Life Risk Assessment uses data from the 2000 Census despite the significant build out that has occurred (or will occur) in flood-prone communities of Central Valley. Urban Levee Improvements shown in figure 3-1 and 3-2 of the CVFPP are likely to induce growth. The data presented underestimates the risk by underestimating 1) the number of people exposed under any of the CVFPP approaches, 2) the number of people who may not survive a flood, 3) the number of people who would demand emergency services and shelter during a flood, and 4) property and infrastructure damages that would occur.

G\_UCB1-02 As best we can tell, the analysis and expected 49.8% benefits from loss of life reduction (figure 2-1) are misconstrued because they consider only that the probability of flooding has decreased (by increasing “protection level” to 200 years) without considering that the consequences of flooding have increased.

G\_UCB1-03 For a specific example: In Table 4-1, does Yuba City’s (SAC25) Life Risk Reduction from 8.2 to 2.4 include the future growth behind levees in the region? Or does it simply reduce the probability of flooding/failure, while not accounting for the increase in population (exposure)? If the latter is the case, it is not only inaccurate, but unethical to conclude that the SSIA is reducing the risk to loss of life.

G\_UCB1-04 **Communities are exposed to involuntary risk**

Increasing risk behind levees is of even greater concern because ‘protected’ communities are not aware of the risk. In 2009, we surveyed residents in an affluent, levee-protected neighborhood in Stockton to assess residents’ awareness of flood risk. We found out that residents did not understand their flood risk, had been informed that they were “not in a floodplain” – despite the fact that their houses were built below sea level (Ludy & Kondolf 2012). This study is significant because it shows that even an affluent, highly educated population with professional jobs did not understand that they were still vulnerable to severe and likely fatal flooding, and the residents were consequently unprepared for floods.

Given that people can only take measures to reduce their risk if they are aware of that risk, exposing them to this risk involuntarily means they cannot make the decision to avoid or reduce their risk. This is unethical and increases the state’s liability and will further strain state resources like those needed for emergency response and recovery.

G\_UCB1-05 **Increased protection is only acceptable with additional measures to reduce risk and limit growth.**

We recognize the extreme challenge the state has in both allowing communities to grow while keeping protecting people and property. We therefore acknowledge the States interest in increasing the levels of protection in urban areas. However the levees-only approach is unacceptable because it induces urbanization and increases risk.

Increasing protection to Urban Areas is therefore *only acceptable* and only generate the positive risk reduction benefits referred to above where existing dense urban areas achieve a greater level of protection. Increasing protection *increases* risk where it induces urbanization by increasing vulnerable populations and property in areas that would otherwise remain undeveloped. That levees induce urban development where it was formerly discouraged by nuisance flooding is well documented. The effect is accepted by scientists and policy analysts, going back to the pioneering work of Gilbert White (1945), and as illustrated in Figure 1 below.

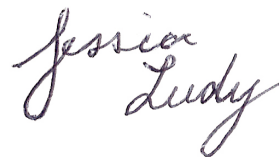
G\_UCB1-06 We therefore support increased flood protection only with additional measures that limit growth and reduce risk such as:

- Conservation easements to prevent further urbanization of undeveloped floodplains
- Mandatory flood insurance with risk-based premiums to reduce financial liability for damages
- Building codes with flood resistant materials to minimize damage when a levee overtops/fails and vertical evacuations to allow people to escape fast-rising water

Sincerely yours,



G. Mathias Kondolf, PhD  
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Jessica Ludy  
 Fulbright Fellow and Lecturer  
 Delft University of Technology, the Netherlands

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G\_UCB1-08

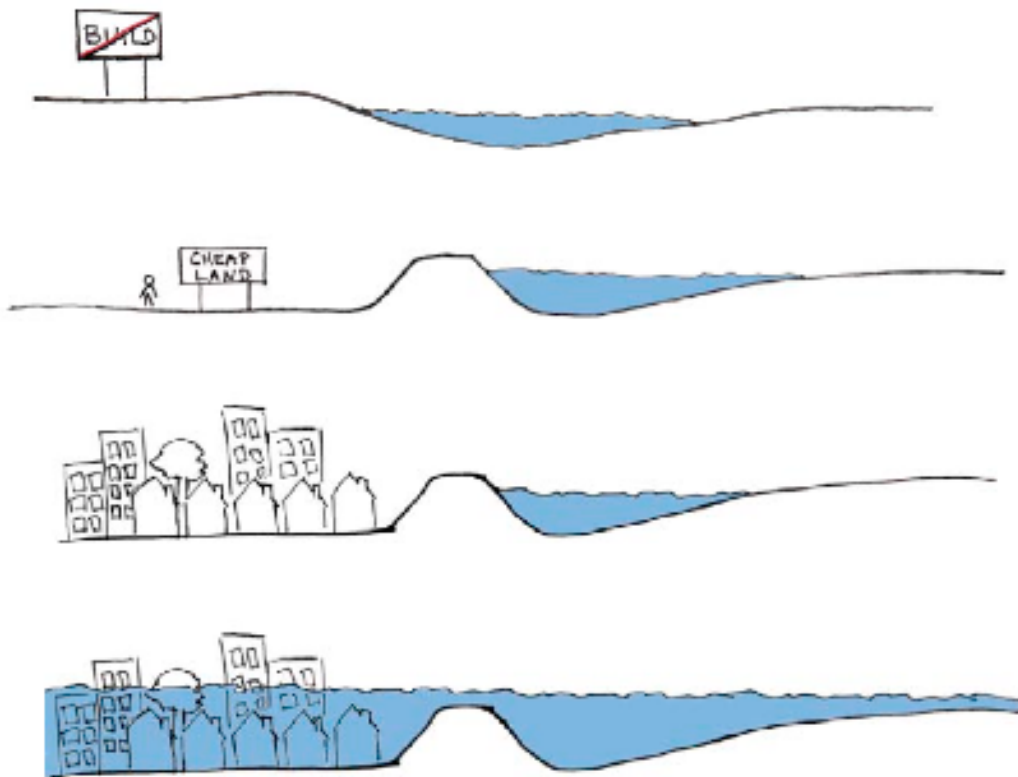


Figure 1. The perverse incentive of levees. Levee construction eliminates the frequent floods that reminded people the floodplain floods. The perception of protection against flooding induces new development in the floodplain, so that when the levee inevitably fails or is overtopped, there are far greater damages than would have been the case without the levee and its induced urbanization.

**UC Berkeley, College of Environmental Design, Landscape Architecture, and Environmental Planning**

***Response***

***G\_UCB1-01***

The Central Valley Flood Protection Act of 2008 (part of SB 5) clarifies that the CVFPP is a descriptive document, and neither the development nor the adoption of the CVFPP constitutes a commitment by the State to provide any particular level of flood protection (CWC Sections 9603(a) and 9603(b)). The CVFPP does not create any new requirements or assurances for levels of flood protection in the Central Valley; the local findings requirements regarding the required levels of protection were established by the State Legislature with the passage of SB 5.

Similarly, the plan does not change existing State requirements related to new development in nonurbanized areas, including small communities, which must continue to meet the national FEMA standard of flood protection (per CGC Sections 65865.5, 65962, and 66474.5). This national standard corresponds to the minimum level of flood protection (100-year flood) required for participation in the NFIP, and is consistent with the existing Building Code. As further stated in Master Response 5, the flood legislation passed in 2007, including the Central Valley Flood Protection Act of 2008 (part of SB 5) and ABs 162, 70, 2140, and 156, strengthened the link between local land use decisions and regional flood management. The land use planning and related requirements specified in the 2007 flood legislation vary depending on location (State of California, Sacramento and San Joaquin Drainage District, and Sacramento–San Joaquin Valley). Some requirements apply to all areas within a flood hazard zone, whether or not they are protected by SPFC facilities or connected to the CVFPP.

As stated in Master Response 4, State law (SB 5) requires an urban level of flood protection for urban and urbanizing areas within the Sacramento–San Joaquin Valley so that these areas will withstand a 1-in-200-year flood event (CGC Sections 65865.5, 65962, and 66474.5). Under the terms of SB 5, adoption of the 2012 CVFPP by the Board would trigger the schedule of compliance actions required for cities and counties to make findings related to an urban level of flood protection.

The requirement for an urban (200-year) level of flood protection is included in SB 5, and through that law is triggered by adoption of the CVFPP. State law (SB 5) requires an urban level of flood protection for urban and urbanizing areas within the Sacramento–San Joaquin Valley (as defined in CGC Section 65007(g)) within a flood hazard zone. CGC Sections 65865.5, 65962, and 66474.5 require all cities and counties within

the Sacramento–San Joaquin Valley to make findings related to an urban level of flood protection before they may take any of the following actions:

- Enter into a development agreement for a property
- Approve a discretionary permit or entitlement for any property development or use, or approve a ministerial permit that would result in construction of a new residence
- Approve a tentative map/parcel map for a subdivision

In addition, as discussed in Section 6.1, “Growth-Inducing Impacts,” of the DPEIR, implementing policies included in 2007 flood legislation (e.g., Senate Bill 5) that require an urban level of flood protection—that is, protection against a 200-year flood—could redirect planned development. Specifically, if cities or counties were to find attaining this level of flood protection to be infeasible, they could alter their land use plans by redirecting land uses from areas subject to flood risk to areas that are not similarly exposed (i.e., areas with existing 200-year flood protection). Growth could be redirected geographically; however, for a variety of reasons, it is highly unlikely that the amount of growth anticipated by city and county general plans would increase. For example, existing and planned infrastructure such as water and wastewater treatment plants and transportation systems would accommodate or be planned to accommodate a certain level of population and type of development. Increasing the level of anticipated growth as part of redirecting growth in response to flood protection conditions would require substantial evaluation and redesign of infrastructure systems. Cities and counties would likely attempt to retain development volumes included in existing general plans, but shift development from areas with insufficient flood protection to locations with greater protection. In some instances, growth may decrease if less flood-prone lands were unavailable to accommodate future development. In either scenario, changes in land use patterns resulting from elements of the 2007 flood legislation would not be anticipated to induce growth.

#### ***G\_UCB1-02***

As stated in Attachment 8G, “Life Risk Analysis,” in CVFPP Volume IV, the total population was calculated by occupancy type using Table 33, “Total Population in Occupied Housing Units by Tenure (owner and renter) by Units in Structure,” from the 2000 Census database. The 2000 Census data were used for the analysis because the 2010 Census data were not yet complete at the time of the analysis.

In addition, as stated in CVFPP Attachment 8G, “Life Risk Analysis,” the 2012 CVFPP’s LRC Method incorporates commonly used procedures for



assessing life risk, as influenced by flood hazard, system performance, and vulnerability and exposure of people. The LRC Method is consistent generally with USACE methods. The resulting life risk values are *conditional*: they represent consequences for a given area with a specified set of hydrologic and hydraulic conditions of the system, with best representation of performance of system levees and other features, and with stated assumptions regarding public warning and response. As such, the results are informative indices of life risk, and the values shown herein provide a reliable metric for *comparing* the life-risk reduction attributable to the proposed 2012 CVFPP approaches. However, the analysis is not a detailed life safety analysis suitable for other purposes, such as to forecast mortality for emergency response.

Given that this analysis is used to evaluate relative differences in life risk among different approaches for each impact area, the LRC Method is appropriate for the 2012 CVFPP's life risk analysis for the following reasons:

- Meets the plan evaluation objectives
- Is systematic, reproducible, and defensible
- Is based on reasonable science
- Relies on empirical data
- Relies on readily available data
- Is applicable systemwide

As further stated in Attachment 8G, "Life Risk Analysis," care should be used when interpreting the computed life risk values reported in Tables 4-1, 4-2, and 4-3 for individual impact areas. Because uncertainties for the life risk consequence inputs were not defined (e.g., persons-per-structure relationships), and because of the inherent precision of the calculations in HEC-FDA, the life risk values may not be significantly different than 0, especially the smaller values (e.g., 0.1).

Future refinements to the analysis might include (but are not limited to) the following:

- Future estimates of population exposed should be adjusted to account for time of day that flooding occurs. The analysis made no distinction between daytime and nighttime flooding. However, in some neighborhoods, such as downtown Sacramento, the population will be

greater during business hours, while in other neighborhoods, such as the residential neighborhoods of Sacramento, population will be greater during the evening.

- Future estimates of population exposed should be adjusted to account for enhancements that come with improved emergency response. For example, DWR has projects under way to refine emergency response plans and to improve forecasting for communities subjected to flooding. These projects will increase the warning time, thus reducing the exposure of people to flooding. This improvement should be accounted for in future estimates of life risk.
- Future estimates of loading should use the best available models. For example, the flood depths used as the basis for computing consequence-probability functions for life risk analysis should be updated to use the results of the Central Valley Hydrology Study and the Central Valley Flood Evaluation and Delineation Study.
- The latest census data should be used as each revision of the CVFPP is undertaken, thus accounting for increases, decreases, and shifts in population.

**G\_UCB1-03**

See response to comment G\_UCB1-02, above.

**G\_UCB1-04**

As stated in Master Response 5, pursuant to CWC Section 9121 (enacted through AB 156), DWR established the Flood Risk Notification Program to increase flood risk awareness by effectively communicating about flood risk to individual property owners, other members of the public, and local, State, and federal agencies. Beginning in September 2010, DWR provided an annual written notice of flood risks to each landowner whose property is protected by SPFC levees and is within a Levee Flood Protection Zone. The notice informs recipients of their properties' potential flood risks and potential sources of flooding, and offers flood emergency planning and preparedness tips. It encourages recipients to take preventive actions such as purchasing flood insurance, elevating or "floodproofing" their buildings, and preventing blockage of channels, drains, and ditches. Flood risk information is available to the public at <http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fas/risknotification/>.

DWR is attempting to provide as much useful information related to 200-year floodplains as possible given its current funding and authority to use available funding. DWR is developing 200-year floodplain maps through

its CVFED Program for areas protected by the SPFC, based on potential flows in the Sacramento and San Joaquin rivers (mainstem and major tributaries). Depending on the source of flooding, these maps may or may not be sufficient to support cities and counties in making their findings related to an urban level of flood protection. The cities and counties are encouraged to consult the *Draft Urban Level of Flood Protection Criteria* for additional detail at <http://www.water.ca.gov/floodsafe/leveedesign/>.

**G\_UCB1-05**

See responses to comments G\_UCB1-01 through G\_UCB1-04, above.

**G\_UCB1-06**

As described in Impact HYD-3, in Section 3.13, “Hydrology,” of the DPEIR, no homes or businesses would be constructed as part of the NTMAs, so none would be placed in a 100-year flood hazard area by this portion of the proposed program. Implementing the NTMAs would provide a higher level of flood protection for some areas currently protected by facilities of the SPFC. In some areas, providing a higher level of flood protection could potentially cause the boundaries of flood hazard areas to change, and existing homes in those areas would no longer be within a flood hazard area. In addition, SB 5 triggers the requirements described in CGC Sections 65865.5 and 65962. The California Legislature has tied achieving those requirements to the Board’s adoption of the CVFPP. Therefore, the adoption of the CVFPP will trigger the statutory requirements that local agencies amend their general plans and zoning ordinances, and make certain findings before approving projects, that could restrict construction of new homes in a flood hazard area. Further, opportunities to construct new homes within a 100-year flood hazard area would be removed where flood, conservation, or other easements are purchased.

**G\_UCB1-07**

The comment does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular insufficiencies in the DPEIR. The comment is noted.

**G\_UCB1-08**

The figure provided is supporting information for comment G\_UCB1-05 above and is not an additional comment. See response to comment G\_UCB1-05, above.

VIA EMAIL: PEIRcomments@water.ca.gov

# G\_WGC1

Mary Ann Holden  
Staff Environmental Scientist  
DWR Division of Flood Management c/o MWH  
3321 Power Inn Road Suite 300  
Sacramento, CA 95826

Re: Comments on DPEIR  
Date Submitted: April 19, 2012

Our comments below are directed to the element of the Plan that addresses the “Cherokee Bypass” provision.

G\_WGC1-01

The Cherokee Bypass element of the Plan is *devoid of meaningful information*. Notwithstanding that fact, we will comment on the impact of what we have been told will be the substantial water flow rate down this proposed bypass.

G\_WGC1-02

1. When will we receive specific information about the size, location, configuration, and engineering details of the bypass?

G\_WGC1-03

2. What impact will this have on the hunting clubs of the Butte Sink and their substantial improvements upon their properties?

G\_WGC1-04

3. Will Western Canal Water District be impacted in its ability to provide contractual water flows to the Butte Sink?

G\_WGC1-05

4. Could the bypass adversely affect the Spring Run Chinook away from Butte Creek?

G\_WGC1-06

5. How are farmers, to be effected by levee setbacks? Will they be properly compensated and what will be the process for acquiring their lands?

G\_WGC1-07

6. How do you protect rice production facilities that may exist within the new levees from this bypass?

G\_WGC1-08

7. What will be the negative impacts on migratory birds and other wetland dependent wildlife species?

G\_WGC1-09

8. How will Wild Goose Gas Storage deal with the impact of such a bypass?

G\_WGC1-10

9. Will increased flood flows cause damage to infrastructures in the wetlands in the Butte Sink? Who will pay for any such damage?

G\_WGC1-11

10. When the Butte Sink fills above normal levels, Cherokee Canal flows backward to the north threatening the town of Gridley. Who will be responsible for flood damage to the town of Gridley if it occurs?

G\_WGC1-12

11. Do you plan to include the Stakeholders in future discussions and meetings as this Cherokee Bypass evolves from an “idea” to engineered plans?

Comments submitted by:

Wild Goose Club  
Roger Swanson, VP & Grounds Chairman

## Wild Goose Club

### *Response*

#### ***G\_WGC1-01***

As stated in Master Response 1, the CVFPP is a high-level document that describes the State's vision for a sustainable flood management system in the Central Valley. The SSIA is a responsible and balanced investment approach to achieve this vision. The CVFPP and its PEIR do not permit any specific actions to move forward that would be subject to further evaluation under CEQA. The CVFPP does not provide detailed project descriptions or funding assurances, nor does it preclude any future actions that could contribute to flood management goals.

Specific dimensions, capacities, and alignments for expanded and new bypasses have not been determined as part of the preliminary analyses conducted for the 2012 CVFPP. The analyses contained in the 2012 CVFPP are intended to be conceptual only; they were included as a basis for a program-level analysis that would allow broad comparisons of various flood management options. Potential locations and preliminary sizes described in the plan were identified using information obtained from previous studies and through discussions with local agencies and stakeholders.

Considerable additional work will be required before the bypass projects proposed in the plan are approved and implemented. Details about the dimensions, capacities, and alignments of expanded and new bypasses will be refined during post-adoption implementation activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these activities are conducted, the feasibility of proposed bypass elements will be evaluated and opportunities for public engagement and input will become available. For additional details, see Master Response 1.

As stated in Master Response 14, regional flood management planning, to be conducted in each of nine regions identified in the 2012 CVFPP, is an important next step in identifying specific improvements to rural-agricultural areas, small communities, and urban areas consistent with the SSIA. Upon CVFPP adoption, DWR will work closely with local entities to collect on-the-ground information regarding flood risks and needs, identify potential local and regional improvement projects, assess the performance and feasibility of these projects, and develop proposals that reflect the priorities of local entities in reducing flood risks. Each regional

plan will present an assessment of proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. DWR intends to provide guidance as well as technical and financial assistance to local agencies to prepare the regional flood management plans, subject to availability of funds. This regional effort is scheduled to be launched publicly in June 2012 and is anticipated to continue through 2013.

DWR will engage regional flood planning partners to develop and implement communication strategies with broad interest groups to brief them on flood management planning in their regions. Regional implementing and operating agencies, land use agencies, and interest groups will be invited to participate in the planning process. Each regional planning process will seek input, as appropriate, from agricultural interests, environmental interests, permitting agencies/resource agencies, local emergency responders, tribes, and other stakeholders. DWR anticipates that a regional flood working group will be formed in each region. Information on specific projects will become available during regional flood planning. For additional details, see Master Response 14.

**G\_WGC1-02**

See response to comment G\_WGC1-01.

**G\_WGC1-03**

Project impacts on the physical environment will be evaluated as part of project-level CEQA documents, as necessary. See response to comment G\_WGC1-01.

**G\_WGC1-04**

See responses to comments G\_WGC1-03 and G\_WGC1-01.

**G\_WGC1-05**

See response to comment G\_WGC1-01. Broad, program-level impacts on special-status fish species were addressed in DPEIR Section 3.5, “Biological Resources—Aquatic.”

**G\_WGC1-06**

As discussed in Master Response 2, the conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed

with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified. The CVFPP states the preference to work with willing landowners for needed land acquisitions. All land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable.

In addition to expansion of the bypass system, levee reconstruction, and other elements, the SSIA includes State investments in agricultural conservation easements, which involves working with willing landowners where easements would be consistent with local land use plans. These easements would be used to preserve agriculture and prevent urban development in current agricultural areas, discouraging conversion to land uses that would increase flood risks within floodplains protected by SPFC facilities. Agricultural conservation easements could be purchased through various DWR programs; an example is DWR's Flood Corridor Program, which focuses on nonstructural flood risk reduction integrated with protection of natural resources and agricultural lands. For additional details, see Master Response 2.

**G\_WGC1-07**

See response to comment G\_WGC1-01.

**G\_WGC1-08**

See response to comment G\_WGC1-01. Program-level impacts on migratory birds and other special-status wildlife species were evaluated in DPEIR Section 3.6, "Biological Resources—Terrestrial."

**G\_WGC1-09**

See response to comment G\_WGC1-01. As stated in Master Response 14, elements of the CVFPP are expected to be refined and modified based on regional flood management planning efforts and the two basin-wide feasibility studies. This is especially true for larger system elements that require more studies and feasibility evaluations to better understand their costs and benefits and to reduce the level of uncertainty. All applicable project-specific environmental review will be conducted before implementation of projects stemming from the CVFPP.

**G\_WGC1-10**

As stated in Master Response 12, the State is sensitive to the potential effects of repairs or improvements to SPFC facilities that may result in redirected hydraulic impacts upstream or downstream from these facilities, and is developing more detailed policies to minimize and mitigate potential impacts. Based on current evaluations (see Section 3.13; Attachment 8C, “Riverine Channel Evaluations”; and Attachment 8D, “Estuary Channel Evaluations,” in Appendix A, “Central Valley Flood Protection Plan”), implementing the SSIA as a whole would not result in adverse systemwide hydraulic effects, including any in the Delta. Peak floodflows may increase slightly (over current conditions) in certain reaches, but the expansion of conveyance capacity proposed in the SSIA would attenuate flood peaks and result generally in reduced peak flood stages throughout the system.

Future feasibility studies are needed to refine the proposed elements of the SSIA, and the ultimate configuration of facilities may vary from those presented in the 2012 CVFPP. Only at that time will the State have project-specific modeling results that indicate the specific magnitude and extent of hydraulic impacts, if any, from planned improvements within the system. Cost estimates for the SSIA in the 2012 CVFPP include an allowance for features to mitigate potential significant hydraulic impacts caused by project implementation.

The issue of potentially redirecting hydraulic impacts is also addressed in Section 3.13, “Hydrology,” in the DPEIR under Impact HYD-2 (NTMA), Impact HYD-4 (NTMA), Impact HYD-2 (LTMA), and Impact HYD-4 (LTMA). As indicated in these impact discussions, any project proponent implementing a project consistent with the SSIA that would affect flood stage elevations would need to obtain various applicable permits before project implementation (such as Section 408 and 208.10 authorization from USACE and encroachment permits from the Board). The project proponent would need to analyze the potential for the project to locally impede flow or transfer flood risk by causing changes in river velocity, stage, or cross section. Projects would not be authorized if changes in water surface elevation, and thus flooding potential, would increase above the maximum allowable rise set by these agencies. If the design of a project would result in an unacceptable increase in flooding potential, a project redesign or other mitigation would be required to meet agency standards before the project could be authorized and implemented. For additional details, see Master Response 12. See also response to comment G\_WGC1-01.

**G\_WGC1-11**

See response to comment G\_WGC1-10.



**G\_WGC1-12**

As stated in Master Response 13, anticipated activities after adoption of the 2012 CVFPP include regional flood management planning, development of basin-wide feasibility studies, and completion of project-level proposals and environmental compliance. These efforts will engage local entities and stakeholders to help identify projects to meet local and regional needs for flood management, refine the conceptual system elements proposed in the adopted plan, and identify specific projects for construction.

As part of regional flood management planning, regional plans will be prepared with active participation by regional implementing, operating, and maintaining agencies; local land use agencies (counties and cities); agricultural and environmental interests; emergency responders; and tribes. This effort will collect on-the-ground information regarding flood risks and needs, identify local and regional improvement projects, assess the performance and feasibility of these projects, and develop plans that reflect the priorities of local entities in reducing flood risks in each of the nine regions identified in the CVFPP. Each plan will also assess proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. Development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts.

Two basin-wide feasibility studies will be prepared, one in the Sacramento River Basin and one in the San Joaquin River Basin, to refine the major system elements proposed in the 2012 CVFPP (such as bypass expansion and new bypasses) and assess their compatibility with prioritized local projects identified through regional flood management planning. These combinations of system element options and regional elements will form “alternatives” for further evaluation and comparison on a systemwide scale. Stakeholder engagement will be an important and complex component of the basin-wide feasibility studies. It is anticipated that work groups will form to help evaluate and refine physical options for system elements (e.g., bypass expansion and new bypasses), identify implementation challenges, and provide input into the planning process. The feasibility studies will be conducted in close coordination with USACE (and ongoing federal feasibility studies) and local implementing agencies.

The regional and basin-wide feasibility planning efforts will help identify specific improvement projects for design and environmental review. Stakeholders and the public will have additional opportunities to provide input. The draft feasibility reports and any accompanying environmental documentation will be made available to the public for review and comments.

As stated in Master Response 14, regional flood management planning, to be conducted in each of nine regions identified in the 2012 CVFPP, is an important next step in identifying specific improvements to rural-agricultural areas, small communities, and urban areas consistent with the SSIA. Upon CVFPP adoption, DWR will work closely with local entities to collect on-the-ground information regarding flood risks and needs, identify potential local and regional improvement projects, assess the performance and feasibility of these projects, and develop proposals that reflect the priorities of local entities in reducing flood risks. Each regional plan will present an assessment of proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. DWR intends to provide guidance as well as technical and financial assistance to local agencies to prepare the regional flood management plans, subject to availability of funds.

Regional flood management plans are anticipated to:

- Assess regional flood risks and management actions (projects) to reduce these risks
- Discuss regional priorities, including criteria used to prioritize individual projects
- Describe specific projects, including their potential costs, regional and systemwide benefits, and beneficiaries
- Provide a financial plan describing how the proposed projects would be funded, including cost sharing and financing for local shares
- Describe regional governance of flood management

Development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts. Information and outcomes from the regional planning process will inform the State-led basin-wide feasibility studies, preparation of a financing plan for the CVFPP, and the first update of the CVFPP (scheduled for completion by 2017). This regional effort is scheduled to be launched publicly in June 2012 and is anticipated to continue through 2013.

DWR will engage regional flood planning partners to develop and implement communication strategies with broad interest groups to brief them on flood management planning in their regions. Regional implementing and operating agencies, land use agencies, and interest groups will be invited to participate in the planning process. Each regional

**3.0 Individual Comments and Responses**  
**3.5 Group Agency Comments and Responses**

planning process will seek input, as appropriate, from agricultural interests, environmental interests, permitting agencies/resource agencies, local emergency responders, tribes, and other stakeholders. DWR anticipates that a regional flood working group will be formed in each region. For additional details, see Master Responses 13 and 14.



February 21, 2012

State of California  
Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento CA 95821

RE: Agriculture and Central Valley Flood Issues

G\_YCFB1-01 I am unable to attend the meeting on Friday, February 24th when the Central Valley Flood Protection Plan will be discussed. The proposal affects some 40,000 acres of land in the Central Valley. The existing flood system is outdated and needs improvements, **but any changes should be thoroughly examined, considered and betted through affected landowners and farmers.** Unfortunately, the input from affected landowners and farmers have been limited, and the timeline has very short.

G\_YCFB1-02 I am very concerned about the proposed plan for the following reasons:

- G\_YCFB1-03 • The potential **farmland conversion** impacts;
- G\_YCFB1-04 • The **importance of Central Valley agriculture** and the potential impacts on the **viability** of Central Valley agriculture;
- G\_YCFB1-05 • **Private property rights**;
- G\_YCFB1-06 • Impacts on particular **parcels, farming operations, reclamation district areas**, etc.
- G\_YCFB1-07 • Impacts on **livelihoods and businesses**;
- G\_YCFB1-08 • Impacts on **property values**;
- G\_YCFB1-09 • The potential for **eminent domain** abuses;
- G\_YCFB1-10 • The importance of preserving the capacities of the **flood bypasses** by retaining lands in agriculture;
- G\_YCFB1-11 • The potential for **conflicts** between the **flood protection** purposes of the bypasses and the prospect of extensive **habitat restoration** in the bypasses;
- G\_YCFB1-12 • Improper subordination in the Plan of traditional flood protection purposes to ecosystem restoration;
- G\_YCFB1-13 • The need for dedicated **funding, permitting, and legal enforcement** to maintain the flood protection functions of weirs and bypasses;
- G\_YCFB1-14 • The **timing of inundation** in the bypasses and the **compatibility** of farming with future inundation for proposed habitat and fish passage purposes;
- G\_YCFB1-15 • Potential **redirected impacts** and **unintended consequences** of the Flood Plan, including potential increased pressure on existing levees;
- G\_YCFB1-16 • The need for meaningful **involvement from farmers, landowners, and other affected interests** in rural and agricultural areas;
- G\_YCFB1-17 • **Assurances** associated with **potential liabilities** under the federal and state **endangered species** acts;
- G\_YCFB1-18 • Imposing **flood protection standards** on rural and agricultural areas that are unreasonable, impracticable, and ill-suited to a rural setting (inflexible FEMA rules, 100-yr. level of flood protection);
- G\_YCFB1-19 • Shifting greater burdens, pressures, risks and liabilities on to **agricultural and rural areas** when compared to urban and urbanizing areas.

Sincerely,

State of California  
Central Valley Flood Protection Board  
Central Valley Flood Protection Plan  
February 21, 2012

Candace Miramontes  
Printed Name

Robert Miramontes SR  
Printed Name

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Printed Name

Jim Vann  
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Lenore Timko  
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State of California  
Central Valley Flood Protection Board  
Central Valley Flood Protection Plan  
February 21, 2012

DAN BICKEL  
Printed Name

Toni Ann Moss  
Printed Name

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## **Yolo County Farm Bureau**

### ***Response***

#### ***G\_YCFB1-01***

As stated in Master Response 13, the CVFPP and related PEIR have included substantial outreach and engagement activities since 2009 to help first develop the goals of the CVFPP, and more recently to allow for comments on the environmental analysis presented in the DPEIR. A full list of participants and forms of engagement related to the CVFPP are provided in Attachment 5, “Engagement Record,” in Appendix A, “Central Valley Food Protection Plan.” Master Response 13, especially Section b, describes the future opportunities for engagement that will be available to landowners, farmers, and others as further program planning proceeds.

The comments in this letter do not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR. The comments are noted.

#### ***G\_YCFB1-02***

As stated in Master Responses 2 and 3, the CVFPP is a high-level document that describes the State’s vision for a sustainable flood management system in the Central Valley through improvements such as bypass expansions. For preliminary planning purposes, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (that is, would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. These preliminary planning estimates will be refined during subsequent project-level analyses. The actual needs for and uses of land, including farmland conversion, will vary depending on the types and locations of specific flood system improvements. The CVFPP, as noted in Sections 3.4.1 and 3.5.1 of Appendix A, “Central Valley Flood Protection Plan,” describes State investments in agricultural conservation easements to help preserve agriculture.

The DPEIR does, in fact, address potential effects on agricultural lands and productivity. As stated in Master Response 2, the DPEIR recognizes that converting lands from agricultural uses would result in potentially significant and unavoidable impacts, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA) in Section 3.3, “Agriculture and Forestry Resources,” of the DPEIR. Many commenters expressed the view that such conversions should not occur, and that including such conversions in the

SSIA undervalues agriculture as a primary industry in the Central Valley that provides a range of economic, social, habitat, and other benefits. Many commenters also explained that particular lands have been in family ownership for generations, often dating back to the earliest days of statehood. DWR and the Board respect these benefits and the relationships that many individuals have to any lands that might be converted, which are anticipated to be substantial topics during any project-level public engagement processes. However, the DPEIR has adequately addressed the environmental issues at a program level and no new significant environmental topics or information were raised in the comments.

For additional details related to the potential agricultural land conversion effects of the CVFPP, see Master Response 2. For additional details related to the effects of the CVFPP on agriculture, see Master Responses 2 and 3.

**G\_YCFB1-03**

See response to comment G\_YCFB1-02.

**G\_YCFB1-04**

DWR and the Board recognize that the construction and operation of proposed management actions (i.e., new bypasses, levee setbacks, and expanded floodways) may affect private property rights. As stated in Master Response 2, because the SSIA was developed at a conceptual or program level, it does not identify any specific project; therefore, any lands or property rights that may be needed to implement the plan are unknown at this time. It is anticipated that land uses within any expansions of the flood management system would be a mix of flood facilities and agricultural and environmental conservation uses; however, the exact amount and geographical distribution of these land uses will require further analyses as future specific projects are considered and evaluated.

The conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide



feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified.

The CVFPP states the preference to work with willing landowners for needed land acquisitions. The SSIA includes State investments in agricultural conservation easements, which involves working with willing landowners where easements would be consistent with local land use plans. These easements would be used to preserve agriculture and prevent urban development in current agricultural areas, discouraging conversion to land uses that would increase flood risks within floodplains protected by SPFC facilities. Agricultural conservation easements could be purchased through various DWR programs; an example is DWR's Flood Corridor Program, which focuses on nonstructural flood risk reduction integrated with protection of natural resources and agricultural lands.

DWR and the Board respect private property rights, and all land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable.

For additional details, see Master Response 2.

**G\_YCFB1-05**

As stated in Master Responses 2 and 3, and as discussed in response to comment G\_YCFB1-02 above, the conversion of lands from agricultural uses would result in potentially significant and unavoidable impacts, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA). The PEIR includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) in Section 3.3, "Agriculture and Forestry Resources," of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed. Therefore, DWR and the Board have determined that the DPEIR has adequately addressed the environmental issues related to the conversion of agricultural land to nonagricultural uses at a program level. For additional details, see Master Responses 2 and 3.

DWR and the Board are aware that if a future site-specific project is implemented, project-level CEQA compliance may be required to analyze

specific environmental impacts and to identify required mitigation measures, where appropriate, including projects that propose converting agricultural lands to nonagricultural uses. See Section 2.5.1, “Implementation in Accordance with Applicable Laws and Regulations,” of the DPEIR, which states that “...subsequent implementation actions stemming from adoption of the proposed program would involve additional project-level environmental review and documentation to the extent required by CEQA and the CEQA Guidelines.”

**G\_YCFB1-06**

This comment raises issues of a social and economic nature, which are beyond the scope of analysis required by CEQA, except to the extent that they may link the proposed project to potentially significant adverse effects on the physical environment or to the extent that they are considered as part of the determination of significance of a physical environmental effect (see State CEQA Guidelines Section 15131). Section 3.16, “Population, Employment, and Housing,” of the DPEIR discusses issues relevant to these topics, and Master Responses 2 and 3 provide additional information on effects related to agricultural land conversion and the sustainability of rural-agricultural economies, respectively.

**G\_YCFB1-07**

This comment raises issues of a social and economic nature, which are beyond the scope of analysis required by CEQA, except to the extent that they may link the proposed project to potentially significant adverse effects on the physical environment or to the extent that they are considered as part of the determination of significance of a physical environmental effect (see State CEQA Guidelines Section 15131). As stated in Master Response 1, concerns were expressed that preliminary identification of conceptual bypass elements and other SSIA system elements might create a “cloud” over the properties, making it difficult to manage, obtain loans for, or sell those properties. DWR and the Board wish to make clear that the conceptual designs reflected in the CVFPP do not reflect a determination regarding any specific properties, and that the potential involvement of particular properties in any future project is entirely speculative at this time. For additional details, see Master Response 1.

**G\_YCFB1-08**

The commenter states a concern about possible “eminent domain abuses,” but does not further clarify this concern or comment on the environmental analysis provided in the DPEIR. In the event that future steps necessitate the use of eminent domain, such actions would be undertaken by agencies with the legal authority to exercise such powers and in compliance with federal and State law. California state law limits public agencies’ use of

eminent domain, and agencies seeking to implement management actions under the CVFPP would be subject to all the restrictions and limitations that exist for other agencies in California. For additional details, see response to comment G\_YCFB1-04.

**G\_YCFB1-09**

As stated in Master Response 2, a portion of the lands and easements needed to implement the SSIA would support improvements to urban levees, but the majority (by surface area) would support floodway expansion and repair and/or reconstruction of levees in rural areas. For preliminary planning purposes, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. However, these preliminary planning estimates will be refined during subsequent project-level analyses. The actual needs for and uses of land will vary depending on the types and locations of specific flood system improvements.

The conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified. The CVFPP states the preference to work with willing landowners for needed land acquisitions. All land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable. For additional details, see Master Response 2.

As stated in Master Responses 1, 2, and 13, future project-level planning for the CVFPP, including possible bypass expansions and new bypasses, will involve the development of basin-wide feasibility studies, the completion of project-level proposals, and compliance with environmental laws and regulations. During these efforts, opportunities to invest in agricultural easements with willing landowners to preserve agriculture, as well as ensuring compliance with Mitigation Measures AG-1a, AG-1b, and

AG-1c (NTMA and LTMA), which address specific ways to lessen impacts on existing agriculture, will occur. For additional details, see Master Responses 1, 2, and 13.

As stated in Master Response 14, both the Board and USACE have statutory roles for oversight of modifications to the State-federal flood management system (the SPFC), executed through their respective project review and permitting authorities. The Board has review and permitting authority under the California Water Code and CCR Title 23 for any project, including those resulting from the CVFPP, that may encroach upon, improve, alter, or affect adopted plans of flood control (including the State-federal flood management systems, regulated streams, and designated floodways under the Board's jurisdiction). DWR and the Board recognize that multiple types of crops are currently cultivated in the floodways which can pass the design flows. When the Board permits an activity in the federal flood control facilities, which includes the bypasses, the Board requires technical information that demonstrates the activity will not affect the design flows. Any future management action undertaken that may affect design flow in a federal flood control facility will need to be designed to pass the design flow.

#### ***G\_YCFB1-10***

This comment notes the potential for conflicts between the values of bypasses for flood protection and habitat restoration. The comment does not include specific requests for additional information or concerns with the environmental analysis presented in the DPEIR. As stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)). Among these multiple objectives is the goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk-reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time. For additional details, see Master Response 7.

The DPEIR prepared for the CVFPP concluded that implementing conservation and habitat restoration actions could adversely affect agricultural land and production (see Section 3.3, "Agriculture and Forestry Resources," of the DPEIR). Impact AG-3 (NTMA) states, "Integration of environmental conservation elements into NTMAs is designed to enhance habitat and restore natural ecosystem processes and functions. These elements would be developed to increase the quantity, quality, diversity,

and connectivity of riparian, wetland, floodplain, emergent, and shaded riverine aquatic habitats. As a result, conversion of agricultural land to nonagricultural uses would result in some areas from implementation of these elements. This land would typically be placed under a conservation easement or some other mechanism would be used to preserve the habitat in perpetuity.”

Impact AG-3 (NTMA) also notes that “Purchasing flood easements could provide beneficial effects by preventing development from occurring on agricultural land and preserving land uses compatible with periodic flooding, which may preserve agricultural land uses. As demonstrated throughout the Central Valley, multiple types of crops are currently cultivated in floodways under appropriate conditions. Conversely, agricultural lands within the floodway may no longer be suitable for certain types of agricultural production because they would be inundated during high-water events. Soil conditions in a parcel may not change, agricultural infrastructure may remain in place (e.g., irrigation facilities), and other factors critical to agricultural productivity may remain unaffected. However, regular inundation within the expanded floodway may make certain types of agricultural production in the floodway no longer feasible.”

As stated in Master Responses 2 and 3, the PEIR includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. Therefore, DWR and the Board have determined that the DPEIR has adequately addressed the environmental issues related to the conversion of agricultural land to nonagricultural uses at a program level. For additional details, see Master Responses 2 and 3.

**G\_YCFB1-11**

As stated in Master Response 19, the primary goal is “to improve flood risk management.” The four supplemental goals, by definition, are supplemental to the primary goal to improve flood risk management.

As further stated in Master Response 19, the California Central Valley Flood Protection Act of 2008 (SB 5) defined multiple objectives for the CVFPP, codified in CWC Section 9616, to be achieved wherever feasible. Goals for the CVFPP were collaboratively drafted by DWR, its partners (the Board and USACE), and interested parties through an extensive communications and engagement process, capturing the guidance and objectives provided by CWC Section 9616. As a result of this process, one primary goal and four supporting CVFPP goals were established and provided guidance in forming specific CVFPP policies and physical elements. The process used to develop CVFPP goals is described in Section 1.6 of the Plan, titled “Formulation of the 2012 Central Valley Flood

Protection Plan.” Much of this information is repeated and/or summarized in Section 2.1.2, “Purpose and Objectives of the Proposed Program,” and Section 2.2, “Development of the Proposed Program,” of the DPEIR. For additional details, see Master Response 19.

**G\_YCFB1-12**

The commenter notes the need for dedicated funding, permitting, and legal enforcement to maintain flood protection functions. No specific issues related to the environmental analysis presented in the DPEIR are raised in this comment. As stated in Master Responses 14 and 15, the Central Valley Flood Protection Act of 2008 (SB 5) requires DWR to prepare a financing plan for the CVFPP after plan adoption (see Section 4.7 in Appendix A, “Central Valley Flood Protection Plan”). Up to \$1.7 billion of bond funding will be available during the next 5 years for CVFPP-related projects. Use of bond funds will be prioritized based on the severity of flood risks, considering proposed project costs and benefits and contributions to basin-wide solutions (consistent with the CVFPP). After the Board adopts the CVFPP, DWR will create a financing plan for potential legislative actions to fund the next increment of capital improvements, O&M, and residual risk management activities for the CVFPP.

As stated in Master Response 3, the State recognizes potential regional differences in the capacity to pay for flood system improvements and O&M. The CVFPP proposes working with rural interests to develop appropriate criteria for rural levee repairs to cost-effectively address known problems (see CVFPP Sections 3.4.1 and 4.1.4). Further, the plan proposes reviewing O&M roles and responsibilities for SPFC facilities and forming regional maintenance authorities, as appropriate, in the interest of improving maintenance efficiency and more equitably distributing system maintenance costs to beneficiaries. For example, DWR has developed cost-sharing guidelines to promote multiobjective projects and to provide additional financial support for economically disadvantaged areas.

As stated in Master Response 14, both the Board and USACE have statutory roles for oversight of modifications to the State-federal flood management system (the SPFC), executed through their respective project review and permitting authorities. The Board has review and permitting and enforcement authority under the California Water Code and CCR Title 23 for any project, including those resulting from the CVFPP, that may encroach upon, improve, alter, or affect adopted plans of flood control (including the State-federal flood management systems, regulated streams, and designated floodways under the Board’s jurisdiction).

Implementing the SSIA requires a wide range of actions for planning, developing, analyzing, constructing, and managing improvements to the

SPFC. This work will be organized into several programs, established and led by DWR and implemented in coordination with local, State, and federal partnering agencies. These programs are under DWR's existing FloodSAFE California Program. Each program is responsible for specialized implementation of different portions of the SSIA; together, they cover all work required for implementation and management.

For additional details, see Master Responses 3, 14, and 15.

**G\_YCFB1-13**

As stated in Master Response 1, the PEIR recognizes that converting current land uses (particularly agricultural uses) to bypass and related uses (such as habitat and recreation) would result in potentially significant and unavoidable impacts, particularly on agriculture, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMAs and LTMAAs). The timing of inundation in bypasses is a project-level component that cannot be evaluated in a program-level EIR such as the DPEIR. The comment is noted, and potential impacts on the physical environment from the quantities and timing of bypass flooding for flood conveyance, habitat, fish passage, or any other purpose will be addressed in project-level CEQA documents as necessary. The DPEIR has adequately addressed the environmental issues at a program level, and no new significant environmental topics or information were raised in the comments. For additional details regarding new and expanded bypass development, see Master Response 1.

As stated in Master Responses 2 and 3, the DPEIR includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) in Section 3.3, "Agriculture and Forestry Resources," of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed. For additional details, see Master Responses 2 and 3.

**G\_YCFB1-14**

As stated in Master Response 12, the State is sensitive to the potential effects of repairs or improvements to SPFC facilities that may result in redirected hydraulic impacts upstream or downstream from these facilities,

including potential increased pressure on existing levees. Future feasibility studies are needed to refine the proposed elements of the SSIA, and the ultimate configuration of facilities may vary from those presented in the 2012 CVFPP. Only at that time will the State have project-specific modeling results that indicate the specific magnitude and extent of hydraulic impacts, if any, from planned improvements within the system.

The issue of potentially redirecting hydraulic impacts is also addressed in Section 3.13, “Hydrology,” in the DPEIR under Impact HYD-2 (NTMA), Impact HYD-4 (NTMA), Impact HYD-2 (LTMA), and Impact HYD-4 (LTMA). As indicated in these impact discussions, any project proponent implementing a project consistent with the SSIA that would affect flood stage elevations would need to obtain various applicable permits before project implementation (such as Section 408 and 208.10 authorization from USACE and encroachment permits from the Board). The project proponent would need to analyze the potential for the project to locally impede flow or transfer flood risk by causing changes in river velocity, stage, or cross section. Projects would not be authorized if changes in water surface elevation, and thus flooding potential, would increase above the maximum allowable rise set by these agencies. If the design of a project would result in an unacceptable increase in flooding potential, a project redesign or other mitigation would be required to meet agency standards before the project could be authorized and implemented. For additional details, see Master Response 12.

#### ***G\_YCFB1-15***

As stated in Master Responses 13 and 14, anticipated activities after adoption of the 2012 CVFPP include regional flood management planning, development of basin-wide feasibility studies, and completion of project-level proposals and environmental compliance. These efforts will engage local entities and stakeholders to help identify projects to meet local and regional needs for flood management, refine the conceptual system elements proposed in the adopted plan, and identify specific projects for construction.

As part of regional flood management planning, regional plans will be prepared with active participation by regional implementing, operating, and maintaining agencies; local land use agencies (counties and cities); agricultural and environmental interests; emergency responders; and tribes. This effort will collect on-the-ground information regarding flood risks and needs, identify local and regional improvement projects, assess the performance and feasibility of these projects, and develop basin plans that reflect the priorities of local entities in reducing flood risks in each of the nine regions identified in the CVFPP. Stakeholder engagement will be an important and complex component of the basin-wide feasibility studies.



The studies will be conducted in coordination with USACE (and ongoing cost-share feasibility studies) and local implementing agencies. It is anticipated that working groups will form to help evaluate and refine bypass expansion options, identify implementation challenges, and provide input in the planning process. For additional details, see Master Responses 13 and 14.

**G\_YCFB1-16**

This comment raises concerns about assurances associated with potential liabilities under the federal ESA and the CESA. The CVFPP and related DPEIR do not alter these laws or related liabilities for landowners. As stated in Master Response 7, the CVFPP is intended to meet multiple objectives, including the integration of ecosystem benefits. It would be speculative to assume that a private property owner could face additional liabilities under the ESA or CESA as a consequence of a future project. See Master Responses 13 and 14 for additional information about how project proposals under the CVFPP would be developed in the future and public engagement is encouraged in post-adoption processes.

Section 3.6, “Terrestrial Biological Resources,” of the DPEIR discusses the impacts of the proposed program on federally listed and State-listed endangered species. Mitigation Measure BIO-T-3b in Section 3.6 states that “The project proponent will coordinate with the appropriate regulatory agency (e.g., USFWS or DFG) to determine acceptable methods for minimizing or compensating for effects on a species; and applicable State and/or federal permits will be secured and permit requirements will be implemented (see Section 3.6, “Biological Resources—Terrestrial,” of the DPEIR). Mitigation Measure BIO-T-3c states that “The project proponent will consult or coordinate with USFWS under the federal ESA and DFG under the CESA regarding potential impacts on listed plant and wildlife species and associated critical habitat. The project proponent will implement any additional measures developed through the ESA and CESA consultation processes, including conditions of Section 7 biological opinions and Section 2081 permits” (see Section 3.6, “Biological Resources—Terrestrial,” of the DPEIR).

As stated in Master Response 1, several commenters expressed concern regarding the potential for particular properties to be included in a bypass proposal. Concerns were also expressed that preliminary identification of conceptual bypass designs might create a “cloud” over the properties, making it difficult to manage, obtain loans for, or sell those properties. DWR and the Board wish to make clear that the conceptual designs reflected in the CVFPP do not reflect a determination regarding any specific properties, and that the potential involvement of particular properties in any future bypass project is entirely speculative at this time.

Potential agricultural land conversions and the resulting effects are discussed further in Master Responses 2 and 3.

**G\_YCFB1-17**

This comment does not raise issues or concerns about the environmental analysis presented in the DPEIR, but questions whether “unreasonable, impracticable, and ill-suited” flood protection standards would be imposed in a rural setting. As stated in Master Responses 3 and 4, the CVFPP does not create any new requirements or assurances for levels of flood protection in the Central Valley; the local findings requirements regarding the required levels of protection were established by the State Legislature with the passage of SB 5. The Central Valley Flood Protection Act of 2008 further clarifies that the CVFPP is a descriptive document, and neither the development nor the adoption of the CVFPP constitutes a commitment by the State to provide any particular level of flood protection (CWC Sections 9603(a) and 9603(b)).

The SSIA also outlines various State investments that would contribute to improved flood-risk management in rural-agricultural areas, and that are aimed at promoting sustainable rural-agricultural economies without inducing imprudent urban development in floodplains (e.g., purchasing agricultural easements from willing landowners, when consistent with local land use planning). The SSIA does not target a minimum level of flood protection for State investments in rural-agricultural areas outside of the small communities because conditions and local interests differ from one area to another, and additional regional planning efforts are needed to formulate solutions that meet community needs and State investment priorities. However, the SSIA proposes (1) projects that maintain levee crown elevations for rural SPFC levees and provide all-weather access roads for inspection and floodfighting; (2) economically feasible projects that resolve known SPFC performance problems, in conjunction with development of criteria for rural levee repairs; (3) system elements (e.g., bypass expansion) that lower peak flood stages within some rural channels; and (4) actions to manage residual flood risks.

The State supports efforts to reform FEMA’s NFIP to more equitably reflect corresponding flood risks, including establishing a flood zone for agriculturally based communities to allow replacement of existing structures or reinvestment development in the floodplain. The State also supports identifying a special, lower-premium rate structure that reflects actual flood risks for agricultural buildings in rural-agricultural areas located in Special Flood Hazard Areas. The State will work with local flood management interests to pursue reform of the FEMA NFIP.

For additional details, see Master Responses 3 and 4.

**G\_YCFB1-18**

The commenter expresses concern that “greater burdens, pressures, risks, and liabilities” will be placed on agricultural and rural areas when compared to urban and urbanizing areas. State law (SB 5) defines an urban level of flood protection for urban and urbanizing areas within the Sacramento–San Joaquin Valley as that level of protection necessary to withstand a 1-in-200-year flood event (CGC Sections 65007, 65865.5, 65962, and 66474.5). Under SB 5, non-urbanized areas are subject to the national FEMA standard of flood protection. Under the terms of SB 5, adoption of the 2012 CVFPP by the Board would trigger the schedule of compliance actions required for cities and counties to make findings related to an urban level of flood protection for urban and urbanizing areas, and the FEMA standard for non-urbanized areas.

As stated in Master Response 4, the SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises. All areas protected by the SPFC would benefit from State investments included in the SSIA to improve residual risk management, such as enhanced flood emergency preparedness, response, and recovery.

As stated in Master Response 3, implementing the SSIA would increase the percentage of the population receiving at least 100-year (1 percent annual chance) flood protection from the current 21 percent to more than 90 percent (CVFPP, page 3-40). The remaining 10 percent of the population would receive benefits through residual risk management actions. Based on initial planning-level cost estimates developed to evaluate elements of various scenarios considered under the 2012 CVFPP, more than 20 percent of total SSIA investments would support rural-agricultural and small community improvements, and residual risk management. In addition, systemwide elements (which account for almost 40 percent of total SSIA investments) are anticipated to provide flood stage reduction benefits to many of the areas in the system, including small communities and rural-agricultural areas. The SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises.

As stated in Master Response 4, the CVFPP does not include levee design criteria for rural areas, but recognizes that the urban levee design criteria are not always practical or affordable for protecting rural areas. The SSIA does not target a minimum level of flood protection for State investments in rural-agricultural areas outside of the small communities because conditions and local interests differ from one area to another, and

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additional regional planning efforts are needed to formulate solutions that meet community needs and State investment priorities. DWR supports future development and implementation of rural levee repair criteria in coordination with local and regional flood management agencies.

For additional details, see Master Responses 3 and 4.





## **Yolo County Farm Bureau**

### ***Response***

#### ***G\_YCFB2-01***

YCFB distributed basic information about the CVFPP and a request encouraging attendance at upcoming meetings on the CVFPP and the DPEIR, or signatures on a petition noting YCFB's concerns. This comment is noted, but it does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular DPEIR insufficiencies. No further response is necessary.

#### ***G\_YCFB2-02***

As stated in Master Response 13, the CVFPP and related PEIR have included substantial outreach and engagement activities since 2009 to help first develop the goals of the CVFPP, and more recently to allow for comments on the environmental analysis presented in the DPEIR. A full list of participants and forms of engagement related to the CVFPP are provided in Attachment 5, "Engagement Record," in Appendix A, "Central Valley Food Protection Plan." Master Response 13, especially Section b, describes the future opportunities for engagement that will be available to landowners, farmers, and others as further program planning proceeds.

The comments in this letter do not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR. The comments are noted.

#### ***G\_YCFB2-03***

As stated in Master Responses 2 and 3, the CVFPP is a high-level document that describes the State's vision for a sustainable flood management system in the Central Valley through improvements such as bypass expansions. For preliminary planning purposes, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (that is, would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. These preliminary planning estimates will be refined during subsequent project-level analyses. The actual needs for and uses of land, including farmland conversion, will vary depending on the types and locations of specific flood system improvements. The CVFPP, as noted in Sections 3.4.1 and 3.5.1 of Appendix A, "Central Valley Flood Protection Plan," describes State

investments in agricultural conservation easements to help preserve agriculture.

The DPEIR does, in fact, address potential effects on agricultural lands and productivity. As stated in Master Response 2, the DPEIR recognizes that converting lands from agricultural uses would result in potentially significant and unavoidable impacts, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA) in Section 3.3, “Agriculture and Forestry Resources,” of the DPEIR. Many commenters expressed the view that such conversions should not occur, and that including such conversions in the SSIA undervalues agriculture as a primary industry in the Central Valley that provides a range of economic, social, habitat, and other benefits. Many commenters also explained that particular lands have been in family ownership for generations, often dating back to the earliest days of statehood. DWR and the Board respect these benefits and the relationships that many individuals have to any lands that might be converted, which are anticipated to be substantial topics during any project-level public engagement processes. However, the DPEIR has adequately addressed the environmental issues at a program level and no new significant environmental topics or information were raised in the comments.

For additional details related to the potential agricultural land conversion effects of the CVFPP, see Master Response 2. For additional details related to the effects of the CVFPP on agriculture, see Master Responses 2 and 3.

***G\_YCFB2-04***

See response to comment G\_YCFB2-03.

***G\_YCFB2-05***

DWR and the Board recognize that the construction and operation of proposed management actions (i.e., new bypasses, levee setbacks, and expanded floodways) may affect private property rights. As stated in Master Response 2, because the SSIA was developed at a conceptual or program level, it does not identify any specific project; therefore, any lands or property rights that may be needed to implement the plan are unknown at this time. It is anticipated that land uses within any expansions of the flood management system would be a mix of flood facilities and agricultural and environmental conservation uses; however, the exact amount and geographical distribution of these land uses will require further analyses as future specific projects are considered and evaluated.

The conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide



feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified.

The CVFPP states the preference to work with willing landowners for needed land acquisitions. The SSIA includes State investments in agricultural conservation easements, which involves working with willing landowners where easements would be consistent with local land use plans. These easements would be used to preserve agriculture and prevent urban development in current agricultural areas, discouraging conversion to land uses that would increase flood risks within floodplains protected by SPFC facilities. Agricultural conservation easements could be purchased through various DWR programs; an example is DWR's Flood Corridor Program, which focuses on nonstructural flood risk reduction integrated with protection of natural resources and agricultural lands.

DWR and the Board respect private property rights, and all land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable.

For additional details, see Master Response 2.

**G\_YCFB2-06**

As stated in Master Responses 2 and 3, and as discussed in response to comment G\_YCFB2-03 above, the conversion of lands from agricultural uses would result in potentially significant and unavoidable impacts, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA). The PEIR includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) in Section 3.3, "Agriculture and Forestry Resources," of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects

(e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed. Therefore, DWR and the Board have determined that the DPEIR has adequately addressed the environmental issues related to the conversion of agricultural land to nonagricultural uses at a program level. For additional details, see Master Responses 2 and 3.

DWR and the Board are aware that if a future site-specific project is implemented, project-level CEQA compliance may be required to analyze specific environmental impacts and to identify required mitigation measures, where appropriate, including projects that propose converting agricultural lands to nonagricultural uses. See Section 2.5.1, “Implementation in Accordance with Applicable Laws and Regulations,” of the DPEIR, which states that “...subsequent implementation actions stemming from adoption of the proposed program would involve additional project-level environmental review and documentation to the extent required by CEQA and the CEQA Guidelines.”

**G\_YCFB2-07**

This comment raises issues of a social and economic nature, which are beyond the scope of analysis required by CEQA, except to the extent that they may link the proposed project to potentially significant adverse effects on the physical environment or to the extent that they are considered as part of the determination of significance of a physical environmental effect (see State CEQA Guidelines Section 15131). Section 3.16, “Population, Employment, and Housing,” of the DPEIR discusses issues relevant to these topics, and Master Responses 2 and 3 provide additional information on effects related to agricultural land conversion and the sustainability of rural-agricultural economies, respectively.

**G\_YCFB2-08**

This comment raises issues of a social and economic nature, which are beyond the scope of analysis required by CEQA, except to the extent that they may link the proposed project to potentially significant adverse effects on the physical environment or to the extent that they are considered as part of the determination of significance of a physical environmental effect (see State CEQA Guidelines Section 15131). As stated in Master Response 1, concerns were expressed that preliminary identification of conceptual bypass elements and other SSIA system elements might create a “cloud” over the properties, making it difficult to manage, obtain loans for, or sell those properties. DWR and the Board wish to make clear that the conceptual designs reflected in the CVFPP do not reflect a determination regarding any specific properties, and that the potential involvement of

particular properties in any future project is entirely speculative at this time. For additional details, see Master Response 1.

**G\_YCFB2-09**

The commenter states a concern about possible “eminent domain abuses,” but does not further clarify this concern or comment on the environmental analysis provided in the DPEIR. In the event that future steps necessitate the use of eminent domain, such actions would be undertaken by agencies with the legal authority to exercise such powers and in compliance with federal and State law. California state law limits public agencies’ use of eminent domain, and agencies seeking to implement management actions under the CVFPP would be subject to all the restrictions and limitations that exist for other agencies in California. For additional details, see response to comment G\_YCFB2-05.

**G\_YCFB2-10**

As stated in Master Response 2, a portion of the lands and easements needed to implement the SSIA would support improvements to urban levees, but the majority (by surface area) would support floodway expansion and repair and/or reconstruction of levees in rural areas. For preliminary planning purposes, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. However, these preliminary planning estimates will be refined during subsequent project-level analyses. The actual needs for and uses of land will vary depending on the types and locations of specific flood system improvements.

The conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified. The CVFPP states the preference to work with willing landowners for needed

land acquisitions. All land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable. For additional details, see Master Response 2.

As stated in Master Responses 1, 2, and 13, future project-level planning for the CVFPP, including possible bypass expansions and new bypasses, will involve the development of basin-wide feasibility studies, the completion of project-level proposals, and compliance with environmental laws and regulations. During these efforts, opportunities to invest in agricultural easements with willing landowners to preserve agriculture, as well as ensuring compliance with Mitigation Measures AG-1a, AG-1b, and AG-1c (NTMA and LTMA), which address specific ways to lessen impacts on existing agriculture, will occur. For additional details, see Master Responses 1, 2, and 13.

As stated in Master Response 14, both the Board and USACE have statutory roles for oversight of modifications to the State-federal flood management system (the SPFC), executed through their respective project review and permitting authorities. The Board has review and permitting authority under the California Water Code and CCR Title 23 for any project, including those resulting from the CVFPP, that may encroach upon, improve, alter, or affect adopted plans of flood control (including the State-federal flood management systems, regulated streams, and designated floodways under the Board's jurisdiction). DWR and the Board recognize that multiple types of crops are currently cultivated in the floodways which can pass the design flows. When the Board permits an activity in the federal flood control facilities, which includes the bypasses, the Board requires technical information that demonstrates the activity will not affect the design flows. Any future management action undertaken that may affect design flow in a federal flood control facility will need to be designed to pass the design flow.

#### **G\_YCFB2-11**

This comment notes the potential for conflicts between the values of bypasses for flood protection and habitat restoration. The comment does not include specific requests for additional information or concerns with the environmental analysis presented in the DPEIR. As stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)). Among these multiple objectives is the goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk-reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project

compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time. For additional details, see Master Response 7.

The DPEIR prepared for the CVFPP concluded that implementing conservation and habitat restoration actions could adversely affect agricultural land and production (see Section 3.3, “Agriculture and Forestry Resources,” of the DPEIR). Impact AG-3 (NTMA) states, “Integration of environmental conservation elements into NTMAs is designed to enhance habitat and restore natural ecosystem processes and functions. These elements would be developed to increase the quantity, quality, diversity, and connectivity of riparian, wetland, floodplain, emergent, and shaded riverine aquatic habitats. As a result, conversion of agricultural land to nonagricultural uses would result in some areas from implementation of these elements. This land would typically be placed under a conservation easement or some other mechanism would be used to preserve the habitat in perpetuity.”

Impact AG-3 (NTMA) also notes that “Purchasing flood easements could provide beneficial effects by preventing development from occurring on agricultural land and preserving land uses compatible with periodic flooding, which may preserve agricultural land uses. As demonstrated throughout the Central Valley, multiple types of crops are currently cultivated in floodways under appropriate conditions. Conversely, agricultural lands within the floodway may no longer be suitable for certain types of agricultural production because they would be inundated during high-water events. Soil conditions in a parcel may not change, agricultural infrastructure may remain in place (e.g., irrigation facilities), and other factors critical to agricultural productivity may remain unaffected. However, regular inundation within the expanded floodway may make certain types of agricultural production in the floodway no longer feasible.”

As stated in Master Responses 2 and 3, the PEIR includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. Therefore, DWR and the Board have determined that the DPEIR has adequately addressed the environmental issues related to the conversion of agricultural land to nonagricultural uses at a program level. For additional details, see Master Responses 2 and 3.

#### **G\_YCFB2-12**

As stated in Master Response 19, the primary goal is “to improve flood risk management.” The four supplemental goals, by definition, are supplemental to the primary goal to improve flood risk management.

As further stated in Master Response 19, the California Central Valley Flood Protection Act of 2008 (SB 5) defined multiple objectives for the CVFPP, codified in CWC Section 9616, to be achieved wherever feasible. Goals for the CVFPP were collaboratively drafted by DWR, its partners (the Board and USACE), and interested parties through an extensive communications and engagement process, capturing the guidance and objectives provided by CWC Section 9616. As a result of this process, one primary goal and four supporting CVFPP goals were established and provided guidance in forming specific CVFPP policies and physical elements. The process used to develop CVFPP goals is described in Section 1.6 of the Plan, titled “Formulation of the 2012 Central Valley Flood Protection Plan.” Much of this information is repeated and/or summarized in Section 2.1.2, “Purpose and Objectives of the Proposed Program,” and Section 2.2, “Development of the Proposed Program,” of the DPEIR. For additional details, see Master Response 19.

#### **G\_YCFB2-13**

The commenter notes the need for dedicated funding, permitting, and legal enforcement to maintain flood protection functions. No specific issues related to the environmental analysis presented in the DPEIR are raised in this comment. As stated in Master Responses 14 and 15, the Central Valley Flood Protection Act of 2008 (SB 5) requires DWR to prepare a financing plan for the CVFPP after plan adoption (see Section 4.7 in Appendix A, “Central Valley Flood Protection Plan”). Up to \$1.7 billion of bond funding will be available during the next 5 years for CVFPP-related projects. Use of bond funds will be prioritized based on the severity of flood risks, considering proposed project costs and benefits and contributions to basin-wide solutions (consistent with the CVFPP). After the Board adopts the CVFPP, DWR will create a financing plan for potential legislative actions to fund the next increment of capital improvements, O&M, and residual risk management activities for the CVFPP.

As stated in Master Response 3, the State recognizes potential regional differences in the capacity to pay for flood system improvements and O&M. The CVFPP proposes working with rural interests to develop appropriate criteria for rural levee repairs to cost-effectively address known problems (see CVFPP Sections 3.4.1 and 4.1.4). Further, the plan proposes reviewing O&M roles and responsibilities for SPFC facilities and forming regional maintenance authorities, as appropriate, in the interest of improving maintenance efficiency and more equitably distributing system maintenance costs to beneficiaries. For example, DWR has developed cost-sharing guidelines to promote multiobjective projects and to provide additional financial support for economically disadvantaged areas.

As stated in Master Response 14, both the Board and USACE have statutory roles for oversight of modifications to the State-federal flood management system (the SPFC), executed through their respective project review and permitting authorities. The Board has review and permitting and enforcement authority under the California Water Code and CCR Title 23 for any project, including those resulting from the CVFPP, that may encroach upon, improve, alter, or affect adopted plans of flood control (including the State-federal flood management systems, regulated streams, and designated floodways under the Board's jurisdiction).

Implementing the SSIA requires a wide range of actions for planning, developing, analyzing, constructing, and managing improvements to the SPFC. This work will be organized into several programs, established and led by DWR and implemented in coordination with local, State, and federal partnering agencies. These programs are under DWR's existing FloodSAFE California Program. Each program is responsible for specialized implementation of different portions of the SSIA; together, they cover all work required for implementation and management.

For additional details, see Master Responses 3, 14, and 15.

**G\_ YCFB2-14**

As stated in Master Response 1, the PEIR recognizes that converting current land uses (particularly agricultural uses) to bypass and related uses (such as habitat and recreation) would result in potentially significant and unavoidable impacts, particularly on agriculture, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMAs and LTMA). The timing of inundation in bypasses is a project-level component that cannot be evaluated in a program-level EIR such as the DPEIR. The comment is noted, and potential impacts on the physical environment from the quantities and timing of bypass flooding for flood conveyance, habitat, fish passage, or any other purpose will be addressed in project-level CEQA documents as necessary. The DPEIR has adequately addressed the environmental issues at a program level, and no new significant environmental topics or information were raised in the comments. For additional details regarding new and expanded bypass development, see Master Response 1.

As stated in Master Responses 2 and 3, the DPEIR includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) in Section 3.3, "Agriculture and Forestry Resources," of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition,

during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed. For additional details, see Master Responses 2 and 3.

**G\_YCFB2-15**

As stated in Master Response 12, the State is sensitive to the potential effects of repairs or improvements to SPFC facilities that may result in redirected hydraulic impacts upstream or downstream from these facilities, including potential increased pressure on existing levees. Future feasibility studies are needed to refine the proposed elements of the SSIA, and the ultimate configuration of facilities may vary from those presented in the 2012 CVFPP. Only at that time will the State have project-specific modeling results that indicate the specific magnitude and extent of hydraulic impacts, if any, from planned improvements within the system.

The issue of potentially redirecting hydraulic impacts is also addressed in Section 3.13, “Hydrology,” in the DPEIR under Impact HYD-2 (NTMA), Impact HYD-4 (NTMA), Impact HYD-2 (LTMA), and Impact HYD-4 (LTMA). As indicated in these impact discussions, any project proponent implementing a project consistent with the SSIA that would affect flood stage elevations would need to obtain various applicable permits before project implementation (such as Section 408 and 208.10 authorization from USACE and encroachment permits from the Board). The project proponent would need to analyze the potential for the project to locally impede flow or transfer flood risk by causing changes in river velocity, stage, or cross section. Projects would not be authorized if changes in water surface elevation, and thus flooding potential, would increase above the maximum allowable rise set by these agencies. If the design of a project would result in an unacceptable increase in flooding potential, a project redesign or other mitigation would be required to meet agency standards before the project could be authorized and implemented. For additional details, see Master Response 12.

**G\_YCFB2-16**

As stated in Master Responses 13 and 14, anticipated activities after adoption of the 2012 CVFPP include regional flood management planning, development of basin-wide feasibility studies, and completion of project-level proposals and environmental compliance. These efforts will engage local entities and stakeholders to help identify projects to meet local and regional needs for flood management, refine the conceptual system



elements proposed in the adopted plan, and identify specific projects for construction.

As part of regional flood management planning, regional plans will be prepared with active participation by regional implementing, operating, and maintaining agencies; local land use agencies (counties and cities); agricultural and environmental interests; emergency responders; and tribes. This effort will collect on-the-ground information regarding flood risks and needs, identify local and regional improvement projects, assess the performance and feasibility of these projects, and develop basin plans that reflect the priorities of local entities in reducing flood risks in each of the nine regions identified in the CVFPP. Stakeholder engagement will be an important and complex component of the basin-wide feasibility studies. The studies will be conducted in coordination with USACE (and ongoing cost-share feasibility studies) and local implementing agencies. It is anticipated that working groups will form to help evaluate and refine bypass expansion options, identify implementation challenges, and provide input in the planning process. For additional details, see Master Responses 13 and 14.

**G\_YCFB2-17**

This comment raises concerns about assurances associated with potential liabilities under the federal ESA and the CESA. The CVFPP and related DPEIR do not alter these laws or related liabilities for landowners. As stated in Master Response 7, the CVFPP is intended to meet multiple objectives, including the integration of ecosystem benefits. It would be speculative to assume that a private property owner could face additional liabilities under the ESA or CESA as a consequence of a future project. See Master Responses 13 and 14 for additional information about how project proposals under the CVFPP would be developed in the future and public engagement is encouraged in post-adoption processes.

Section 3.6, “Terrestrial Biological Resources,” of the DPEIR discusses the impacts of the proposed program on federally listed and State-listed endangered species. Mitigation Measure BIO-T-3b in Section 3.6 states that “The project proponent will coordinate with the appropriate regulatory agency (e.g., USFWS or DFG) to determine acceptable methods for minimizing or compensating for effects on a species; and applicable State and/or federal permits will be secured and permit requirements will be implemented (see Section 3.6, “Biological Resources—Terrestrial,” of the DPEIR). Mitigation Measure BIO-T-3c states that “The project proponent will consult or coordinate with USFWS under the federal ESA and DFG under the CESA regarding potential impacts on listed plant and wildlife species and associated critical habitat. The project proponent will implement any additional measures developed through the ESA and CESA

consultation processes, including conditions of Section 7 biological opinions and Section 2081 permits” (see Section 3.6, “Biological Resources—Terrestrial,” of the DPEIR).

As stated in Master Response 1, several commenters expressed concern regarding the potential for particular properties to be included in a bypass proposal. Concerns were also expressed that preliminary identification of conceptual bypass designs might create a “cloud” over the properties, making it difficult to manage, obtain loans for, or sell those properties. DWR and the Board wish to make clear that the conceptual designs reflected in the CVFPP do not reflect a determination regarding any specific properties, and that the potential involvement of particular properties in any future bypass project is entirely speculative at this time. Potential agricultural land conversions and the resulting effects are discussed further in Master Responses 2 and 3.

#### ***G\_YCFB2-18***

This comment does not raise issues or concerns about the environmental analysis presented in the DPEIR, but questions whether “unreasonable, impracticable, and ill-suited” flood protection standards would be imposed in a rural setting. As stated in Master Responses 3 and 4, the CVFPP does not create any new requirements or assurances for levels of flood protection in the Central Valley; the local findings requirements regarding the required levels of protection were established by the State Legislature with the passage of SB 5. The Central Valley Flood Protection Act of 2008 further clarifies that the CVFPP is a descriptive document, and neither the development nor the adoption of the CVFPP constitutes a commitment by the State to provide any particular level of flood protection (CWC Sections 9603(a) and 9603(b)).

The SSIA also outlines various State investments that would contribute to improved flood-risk management in rural-agricultural areas, and that are aimed at promoting sustainable rural-agricultural economies without inducing imprudent urban development in floodplains (e.g., purchasing agricultural easements from willing landowners, when consistent with local land use planning). The SSIA does not target a minimum level of flood protection for State investments in rural-agricultural areas outside of the small communities because conditions and local interests differ from one area to another, and additional regional planning efforts are needed to formulate solutions that meet community needs and State investment priorities. However, the SSIA proposes (1) projects that maintain levee crown elevations for rural SPFC levees and provide all-weather access roads for inspection and floodfighting; (2) economically feasible projects that resolve known SPFC performance problems, in conjunction with development of criteria for rural levee repairs; (3) system elements (e.g.,

bypass expansion) that lower peak flood stages within some rural channels; and (4) actions to manage residual flood risks.

The State supports efforts to reform FEMA’s NFIP to more equitably reflect corresponding flood risks, including establishing a flood zone for agriculturally based communities to allow replacement of existing structures or reinvestment development in the floodplain. The State also supports identifying a special, lower-premium rate structure that reflects actual flood risks for agricultural buildings in rural-agricultural areas located in Special Flood Hazard Areas. The State will work with local flood management interests to pursue reform of the FEMA NFIP.

For additional details, see Master Responses 3 and 4.

**G\_ YCFB2-19**

The commenter expresses concern that “greater burdens, pressures, risks, and liabilities” will be placed on agricultural and rural areas when compared to urban and urbanizing areas. State law (SB 5) defines an urban level of flood protection for urban and urbanizing areas within the Sacramento–San Joaquin Valley as that level of protection necessary to withstand a 1-in-200-year flood event (CGC Sections 65007, 65865.5, 65962, and 66474.5). Under SB 5, non-urbanized areas are subject to the national FEMA standard of flood protection. Under the terms of SB 5, adoption of the 2012 CVFPP by the Board would trigger the schedule of compliance actions required for cities and counties to make findings related to an urban level of flood protection for urban and urbanizing areas, and the FEMA standard for non-urbanized areas.

As stated in Master Response 4, the SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises. All areas protected by the SPFC would benefit from State investments included in the SSIA to improve residual risk management, such as enhanced flood emergency preparedness, response, and recovery.

As stated in Master Response 3, implementing the SSIA would increase the percentage of the population receiving at least 100-year (1 percent annual chance) flood protection from the current 21 percent to more than 90 percent (CVFPP, page 3-40). The remaining 10 percent of the population would receive benefits through residual risk management actions. Based on initial planning-level cost estimates developed to evaluate elements of various scenarios considered under the 2012 CVFPP, more than 20 percent of total SSIA investments would support rural-agricultural and small community improvements, and residual risk management. In addition,

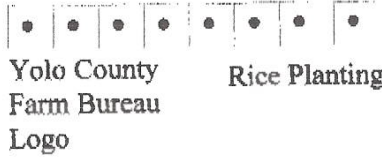
systemwide elements (which account for almost 40 percent of total SSIA investments) are anticipated to provide flood stage reduction benefits to many of the areas in the system, including small communities and rural-agricultural areas. The SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises.

As stated in Master Response 4, the CVFPP does not include levee design criteria for rural areas, but recognizes that the urban levee design criteria are not always practical or affordable for protecting rural areas. The SSIA does not target a minimum level of flood protection for State investments in rural-agricultural areas outside of the small communities because conditions and local interests differ from one area to another, and additional regional planning efforts are needed to formulate solutions that meet community needs and State investment priorities. DWR supports future development and implementation of rural levee repair criteria in coordination with local and regional flood management agencies.

For additional details, see Master Responses 3 and 4.

# G\_YCFB3

**Subject:** Central Valley Flood Area To Be Expanded by 40,000 acres  
**From:** Yolo County Farm Bureau <denise@yolofarmbureau.org>  
**Date:** Tue, 21 Feb 2012 20:00:18 -0500 (EST)  
**To:** jjkaneko@ucdavis.edu



## CENTRAL VALLEY FLOOD PROTECTION PLAN February 21, 2012

G\_YCFB3-01

**IMPORTANT** The State is working on a flood plan called the Central Valley Flood Protection Plan. It increases the flood bypass areas by over 40,000 acres. This draft program has been put together in a very short amount of time, and it's been difficult to get the word out to landowners. The draft was finalized at the end of December. It's a huge document. Additional information, including links, regular updates, and key documents, is available on CFBF's new Flood Issues webpage at <http://www.cfbf.com/issues/water/flood/index.cfm>. In addition, you may contact your local county Farm Bureau, or contact Justin Fredrickson, CFBF Environmental Policy Analyst, at 916-561-5673 or [jfredrickson@cfbf.com](mailto:jfredrickson@cfbf.com). Final comments are due this Friday, February 24th. This is so important that we are contacting you and asking that you either attend the meeting and make comments, or add your signature to this letter and return it to our office by Thursday, the 23rd (two days from now). If you can attend the meeting please plan to do so and make comments. If you cannot attend, please sign the letter and either email, fax or bring it back to us before Friday.

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February 21, 2012

State of California  
Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento CA 95821

RE: Agriculture and Central Valley Flood Issues

G\_YCFB3-02

I am unable to attend the meeting on Friday, February 24th when the Central Valley Flood Protection Plan will be discussed. The proposal affects some 40,000 acres of land in the Central Valley. The existing flood system is outdated and needs improvements, but any changes should be thoroughly examined, considered and betted through affected landowners and farmers. Unfortunately, the input from affected landowners and farmers have been limited, and the timeline has very short.

I am very concerned about the proposed plan for the following reasons:

- \* The potential farmland conversion impacts;
- \* The importance of Central Valley agriculture and the potential impacts on the viability of Central Valley agriculture;
- \* Private property rights;

G\_YCFB3-03

G\_YCFB3-04

G\_YCFB3-05



## **Yolo County Farm Bureau**

### ***Response***

#### ***G\_YCFB3-01***

YCFB distributed basic information about the CVFPP and a request encouraging attendance at upcoming meetings on the CVFPP and the DPEIR, or signatures on a petition noting YCFB's concerns. This comment is noted, but it does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular DPEIR insufficiencies. No further response is necessary.

#### ***G\_YCFB3-02***

As stated in Master Response 13, the CVFPP and related PEIR have included substantial outreach and engagement activities since 2009 to help first develop the goals of the CVFPP, and more recently to allow for comments on the environmental analysis presented in the DPEIR. A full list of participants and forms of engagement related to the CVFPP are provided in Attachment 5, "Engagement Record," in Appendix A, "Central Valley Food Protection Plan." Master Response 13, especially Section b, describes the future opportunities for engagement that will be available to landowners, farmers, and others as further program planning proceeds.

The comments in this letter do not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR. The comments are noted.

#### ***G\_YCFB3-03***

As stated in Master Responses 2 and 3, the CVFPP is a high-level document that describes the State's vision for a sustainable flood management system in the Central Valley through improvements such as bypass expansions. For preliminary planning purposes, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (that is, would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. These preliminary planning estimates will be refined during subsequent project-level analyses. The actual needs for and uses of land, including farmland conversion, will vary depending on the types and locations of specific flood system improvements. The CVFPP, as noted in Sections 3.4.1 and 3.5.1 of Appendix A, "Central Valley Flood Protection Plan," describes State

investments in agricultural conservation easements to help preserve agriculture.

The DPEIR does, in fact, address potential effects on agricultural lands and productivity. As stated in Master Response 2, the DPEIR recognizes that converting lands from agricultural uses would result in potentially significant and unavoidable impacts, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA) in Section 3.3, “Agriculture and Forestry Resources,” of the DPEIR. Many commenters expressed the view that such conversions should not occur, and that including such conversions in the SSIA undervalues agriculture as a primary industry in the Central Valley that provides a range of economic, social, habitat, and other benefits. Many commenters also explained that particular lands have been in family ownership for generations, often dating back to the earliest days of statehood. DWR and the Board respect these benefits and the relationships that many individuals have to any lands that might be converted, which are anticipated to be substantial topics during any project-level public engagement processes. However, the DPEIR has adequately addressed the environmental issues at a program level and no new significant environmental topics or information were raised in the comments.

For additional details related to the potential agricultural land conversion effects of the CVFPP, see Master Response 2. For additional details related to the effects of the CVFPP on agriculture, see Master Responses 2 and 3.

***G\_YCFB3-04***

See response to comment G\_YCFB3-03.

***G\_YCFB3-05***

DWR and the Board recognize that the construction and operation of proposed management actions (i.e., new bypasses, levee setbacks, and expanded floodways) may affect private property rights. As stated in Master Response 2, because the SSIA was developed at a conceptual or program level, it does not identify any specific project; therefore, any lands or property rights that may be needed to implement the plan are unknown at this time. It is anticipated that land uses within any expansions of the flood management system would be a mix of flood facilities and agricultural and environmental conservation uses; however, the exact amount and geographical distribution of these land uses will require further analyses as future specific projects are considered and evaluated.

The conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide



feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified.

The CVFPP states the preference to work with willing landowners for needed land acquisitions. The SSIA includes State investments in agricultural conservation easements, which involves working with willing landowners where easements would be consistent with local land use plans. These easements would be used to preserve agriculture and prevent urban development in current agricultural areas, discouraging conversion to land uses that would increase flood risks within floodplains protected by SPFC facilities. Agricultural conservation easements could be purchased through various DWR programs; an example is DWR's Flood Corridor Program, which focuses on nonstructural flood risk reduction integrated with protection of natural resources and agricultural lands.

DWR and the Board respect private property rights, and all land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable.

For additional details, see Master Response 2.

**G\_YCFB3-06**

As stated in Master Responses 2 and 3, and as discussed in response to comment G\_YCFB3-02 above, the conversion of lands from agricultural uses would result in potentially significant and unavoidable impacts, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA). The PEIR includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) in Section 3.3, "Agriculture and Forestry Resources," of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects

(e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed. Therefore, DWR and the Board have determined that the DPEIR has adequately addressed the environmental issues related to the conversion of agricultural land to nonagricultural uses at a program level. For additional details, see Master Responses 2 and 3.

DWR and the Board are aware that if a future site-specific project is implemented, project-level CEQA compliance may be required to analyze specific environmental impacts and to identify required mitigation measures, where appropriate, including projects that propose converting agricultural lands to nonagricultural uses. See Section 2.5.1, “Implementation in Accordance with Applicable Laws and Regulations,” of the DPEIR, which states that “...subsequent implementation actions stemming from adoption of the proposed program would involve additional project-level environmental review and documentation to the extent required by CEQA and the CEQA Guidelines.”

**G\_YCFB3-07**

This comment raises issues of a social and economic nature, which are beyond the scope of analysis required by CEQA, except to the extent that they may link the proposed project to potentially significant adverse effects on the physical environment or to the extent that they are considered as part of the determination of significance of a physical environmental effect (see State CEQA Guidelines Section 15131). Section 3.16, “Population, Employment, and Housing,” of the DPEIR discusses issues relevant to these topics, and Master Responses 2 and 3 provide additional information on effects related to agricultural land conversion and the sustainability of rural-agricultural economies, respectively.

**G\_YCFB3-08**

This comment raises issues of a social and economic nature, which are beyond the scope of analysis required by CEQA, except to the extent that they may link the proposed project to potentially significant adverse effects on the physical environment or to the extent that they are considered as part of the determination of significance of a physical environmental effect (see State CEQA Guidelines Section 15131). As stated in Master Response 1, concerns were expressed that preliminary identification of conceptual bypass elements and other SSIA system elements might create a “cloud” over the properties, making it difficult to manage, obtain loans for, or sell those properties. DWR and the Board wish to make clear that the conceptual designs reflected in the CVFPP do not reflect a determination regarding any specific properties, and that the potential involvement of

particular properties in any future project is entirely speculative at this time. For additional details, see Master Response 1.

**G\_YCFB3-09**

The commenter states a concern about possible “eminent domain abuses,” but does not further clarify this concern or comment on the environmental analysis provided in the DPEIR. In the event that future steps necessitate the use of eminent domain, such actions would be undertaken by agencies with the legal authority to exercise such powers and in compliance with federal and State law. California state law limits public agencies’ use of eminent domain, and agencies seeking to implement management actions under the CVFPP would be subject to all the restrictions and limitations that exist for other agencies in California. For additional details, see response to comment G\_YCFB3-05.

**G\_YCFB3-10**

As stated in Master Response 2, a portion of the lands and easements needed to implement the SSIA would support improvements to urban levees, but the majority (by surface area) would support floodway expansion and repair and/or reconstruction of levees in rural areas. For preliminary planning purposes, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. However, these preliminary planning estimates will be refined during subsequent project-level analyses. The actual needs for and uses of land will vary depending on the types and locations of specific flood system improvements.

The conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified. The CVFPP states the preference to work with willing landowners for needed

land acquisitions. All land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable. For additional details, see Master Response 2.

As stated in Master Responses 1, 2, and 13, future project-level planning for the CVFPP, including possible bypass expansions and new bypasses, will involve the development of basin-wide feasibility studies, the completion of project-level proposals, and compliance with environmental laws and regulations. During these efforts, opportunities to invest in agricultural easements with willing landowners to preserve agriculture, as well as ensuring compliance with Mitigation Measures AG-1a, AG-1b, and AG-1c (NTMA and LTMA), which address specific ways to lessen impacts on existing agriculture, will occur. For additional details, see Master Responses 1, 2, and 13.

As stated in Master Response 14, both the Board and USACE have statutory roles for oversight of modifications to the State-federal flood management system (the SPFC), executed through their respective project review and permitting authorities. The Board has review and permitting authority under the California Water Code and CCR Title 23 for any project, including those resulting from the CVFPP, that may encroach upon, improve, alter, or affect adopted plans of flood control (including the State-federal flood management systems, regulated streams, and designated floodways under the Board's jurisdiction). DWR and the Board recognize that multiple types of crops are currently cultivated in the floodways which can pass the design flows. When the Board permits an activity in the federal flood control facilities, which includes the bypasses, the Board requires technical information that demonstrates the activity will not affect the design flows. Any future management action undertaken that may affect design flow in a federal flood control facility will need to be designed to pass the design flow.

#### **G\_YCFB3-11**

This comment notes the potential for conflicts between the values of bypasses for flood protection and habitat restoration. The comment does not include specific requests for additional information or concerns with the environmental analysis presented in the DPEIR. As stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)). Among these multiple objectives is the goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk-reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project

compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time. For additional details, see Master Response 7.

The DPEIR prepared for the CVFPP concluded that implementing conservation and habitat restoration actions could adversely affect agricultural land and production (see Section 3.3, “Agriculture and Forestry Resources,” of the DPEIR). Impact AG-3 (NTMA) states, “Integration of environmental conservation elements into NTMAs is designed to enhance habitat and restore natural ecosystem processes and functions. These elements would be developed to increase the quantity, quality, diversity, and connectivity of riparian, wetland, floodplain, emergent, and shaded riverine aquatic habitats. As a result, conversion of agricultural land to nonagricultural uses would result in some areas from implementation of these elements. This land would typically be placed under a conservation easement or some other mechanism would be used to preserve the habitat in perpetuity.”

Impact AG-3 (NTMA) also notes that “Purchasing flood easements could provide beneficial effects by preventing development from occurring on agricultural land and preserving land uses compatible with periodic flooding, which may preserve agricultural land uses. As demonstrated throughout the Central Valley, multiple types of crops are currently cultivated in floodways under appropriate conditions. Conversely, agricultural lands within the floodway may no longer be suitable for certain types of agricultural production because they would be inundated during high-water events. Soil conditions in a parcel may not change, agricultural infrastructure may remain in place (e.g., irrigation facilities), and other factors critical to agricultural productivity may remain unaffected. However, regular inundation within the expanded floodway may make certain types of agricultural production in the floodway no longer feasible.”

As stated in Master Responses 2 and 3, the PEIR includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. Therefore, DWR and the Board have determined that the DPEIR has adequately addressed the environmental issues related to the conversion of agricultural land to nonagricultural uses at a program level. For additional details, see Master Responses 2 and 3.

#### **G\_YCFB3-12**

As stated in Master Response 19, the primary goal is “to improve flood risk management.” The four supplemental goals, by definition, are supplemental to the primary goal to improve flood risk management.

As further stated in Master Response 19, the California Central Valley Flood Protection Act of 2008 (SB 5) defined multiple objectives for the CVFPP, codified in CWC Section 9616, to be achieved wherever feasible. Goals for the CVFPP were collaboratively drafted by DWR, its partners (the Board and USACE), and interested parties through an extensive communications and engagement process, capturing the guidance and objectives provided by CWC Section 9616. As a result of this process, one primary goal and four supporting CVFPP goals were established and provided guidance in forming specific CVFPP policies and physical elements. The process used to develop CVFPP goals is described in Section 1.6 of the Plan, titled “Formulation of the 2012 Central Valley Flood Protection Plan.” Much of this information is repeated and/or summarized in Section 2.1.2, “Purpose and Objectives of the Proposed Program,” and Section 2.2, “Development of the Proposed Program,” of the DPEIR. For additional details, see Master Response 19.

### **G\_YCFB3-13**

The commenter notes the need for dedicated funding, permitting, and legal enforcement to maintain flood protection functions. No specific issues related to the environmental analysis presented in the DPEIR are raised in this comment. As stated in Master Responses 14 and 15, the Central Valley Flood Protection Act of 2008 (SB 5) requires DWR to prepare a financing plan for the CVFPP after plan adoption (see Section 4.7 in Appendix A, “Central Valley Flood Protection Plan”). Up to \$1.7 billion of bond funding will be available during the next 5 years for CVFPP-related projects. Use of bond funds will be prioritized based on the severity of flood risks, considering proposed project costs and benefits and contributions to basin-wide solutions (consistent with the CVFPP). After the Board adopts the CVFPP, DWR will create a financing plan for potential legislative actions to fund the next increment of capital improvements, O&M, and residual risk management activities for the CVFPP.

As stated in Master Response 3, the State recognizes potential regional differences in the capacity to pay for flood system improvements and O&M. The CVFPP proposes working with rural interests to develop appropriate criteria for rural levee repairs to cost-effectively address known problems (see CVFPP Sections 3.4.1 and 4.1.4). Further, the plan proposes reviewing O&M roles and responsibilities for SPFC facilities and forming regional maintenance authorities, as appropriate, in the interest of improving maintenance efficiency and more equitably distributing system maintenance costs to beneficiaries. For example, DWR has developed cost-sharing guidelines to promote multiobjective projects and to provide additional financial support for economically disadvantaged areas.

As stated in Master Response 14, both the Board and USACE have statutory roles for oversight of modifications to the State-federal flood management system (the SPFC), executed through their respective project review and permitting authorities. The Board has review and permitting and enforcement authority under the California Water Code and CCR Title 23 for any project, including those resulting from the CVFPP, that may encroach upon, improve, alter, or affect adopted plans of flood control (including the State-federal flood management systems, regulated streams, and designated floodways under the Board's jurisdiction).

Implementing the SSIA requires a wide range of actions for planning, developing, analyzing, constructing, and managing improvements to the SPFC. This work will be organized into several programs, established and led by DWR and implemented in coordination with local, State, and federal partnering agencies. These programs are under DWR's existing FloodSAFE California Program. Each program is responsible for specialized implementation of different portions of the SSIA; together, they cover all work required for implementation and management.

For additional details, see Master Responses 3, 14, and 15.

**G\_YCFB3-14**

As stated in Master Response 1, the PEIR recognizes that converting current land uses (particularly agricultural uses) to bypass and related uses (such as habitat and recreation) would result in potentially significant and unavoidable impacts, particularly on agriculture, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA). The timing of inundation in bypasses is a project-level component that cannot be evaluated in a program-level EIR such as the DPEIR. The comment is noted, and potential impacts on the physical environment from the quantities and timing of bypass flooding for flood conveyance, habitat, fish passage, or any other purpose will be addressed in project-level CEQA documents as necessary. The DPEIR has adequately addressed the environmental issues at a program level, and no new significant environmental topics or information were raised in the comments. For additional details regarding new and expanded bypass development, see Master Response 1.

As stated in Master Responses 2 and 3, the DPEIR includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) in Section 3.3, "Agriculture and Forestry Resources," of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition,

during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed. For additional details, see Master Responses 2 and 3.

**G\_YCFB3-15**

As stated in Master Response 12, the State is sensitive to the potential effects of repairs or improvements to SPFC facilities that may result in redirected hydraulic impacts upstream or downstream from these facilities, including potential increased pressure on existing levees. Future feasibility studies are needed to refine the proposed elements of the SSIA, and the ultimate configuration of facilities may vary from those presented in the 2012 CVFPP. Only at that time will the State have project-specific modeling results that indicate the specific magnitude and extent of hydraulic impacts, if any, from planned improvements within the system.

The issue of potentially redirecting hydraulic impacts is also addressed in Section 3.13, "Hydrology," in the DPEIR under Impact HYD-2 (NTMA), Impact HYD-4 (NTMA), Impact HYD-2 (LTMA), and Impact HYD-4 (LTMA). As indicated in these impact discussions, any project proponent implementing a project consistent with the SSIA that would affect flood stage elevations would need to obtain various applicable permits before project implementation (such as Section 408 and 208.10 authorization from USACE and encroachment permits from the Board). The project proponent would need to analyze the potential for the project to locally impede flow or transfer flood risk by causing changes in river velocity, stage, or cross section. Projects would not be authorized if changes in water surface elevation, and thus flooding potential, would increase above the maximum allowable rise set by these agencies. If the design of a project would result in an unacceptable increase in flooding potential, a project redesign or other mitigation would be required to meet agency standards before the project could be authorized and implemented. For additional details, see Master Response 12.

**G\_YCFB3-16**

As stated in Master Responses 13 and 14, anticipated activities after adoption of the 2012 CVFPP include regional flood management planning, development of basin-wide feasibility studies, and completion of project-level proposals and environmental compliance. These efforts will engage local entities and stakeholders to help identify projects to meet local and regional needs for flood management, refine the conceptual system



elements proposed in the adopted plan, and identify specific projects for construction.

As part of regional flood management planning, regional plans will be prepared with active participation by regional implementing, operating, and maintaining agencies; local land use agencies (counties and cities); agricultural and environmental interests; emergency responders; and tribes. This effort will collect on-the-ground information regarding flood risks and needs, identify local and regional improvement projects, assess the performance and feasibility of these projects, and develop basin plans that reflect the priorities of local entities in reducing flood risks in each of the nine regions identified in the CVFPP. Stakeholder engagement will be an important and complex component of the basin-wide feasibility studies. The studies will be conducted in coordination with USACE (and ongoing cost-share feasibility studies) and local implementing agencies. It is anticipated that working groups will form to help evaluate and refine bypass expansion options, identify implementation challenges, and provide input in the planning process. For additional details, see Master Responses 13 and 14.

**G\_YCFB3-17**

This comment raises concerns about assurances associated with potential liabilities under the federal ESA and the CESA. The CVFPP and related DPEIR do not alter these laws or related liabilities for landowners. As stated in Master Response 7, the CVFPP is intended to meet multiple objectives, including the integration of ecosystem benefits. It would be speculative to assume that a private property owner could face additional liabilities under the ESA or CESA as a consequence of a future project. See Master Responses 13 and 14 for additional information about how project proposals under the CVFPP would be developed in the future and public engagement is encouraged in post-adoption processes.

Section 3.6, “Terrestrial Biological Resources,” of the DPEIR discusses the impacts of the proposed program on federally listed and State-listed endangered species. Mitigation Measure BIO-T-3b in Section 3.6 states that “The project proponent will coordinate with the appropriate regulatory agency (e.g., USFWS or DFG) to determine acceptable methods for minimizing or compensating for effects on a species; and applicable State and/or federal permits will be secured and permit requirements will be implemented (see Section 3.6, “Biological Resources—Terrestrial,” of the DPEIR). Mitigation Measure BIO-T-3c states that “The project proponent will consult or coordinate with USFWS under the federal ESA and DFG under the CESA regarding potential impacts on listed plant and wildlife species and associated critical habitat. The project proponent will implement any additional measures developed through the ESA and CESA

consultation processes, including conditions of Section 7 biological opinions and Section 2081 permits” (see Section 3.6, “Biological Resources—Terrestrial,” of the DPEIR).

As stated in Master Response 1, several commenters expressed concern regarding the potential for particular properties to be included in a bypass proposal. Concerns were also expressed that preliminary identification of conceptual bypass designs might create a “cloud” over the properties, making it difficult to manage, obtain loans for, or sell those properties. DWR and the Board wish to make clear that the conceptual designs reflected in the CVFPP do not reflect a determination regarding any specific properties, and that the potential involvement of particular properties in any future bypass project is entirely speculative at this time. Potential agricultural land conversions and the resulting effects are discussed further in Master Responses 2 and 3.

#### ***G\_YCFB3-18***

This comment does not raise issues or concerns about the environmental analysis presented in the DPEIR, but questions whether “unreasonable, impracticable, and ill-suited” flood protection standards would be imposed in a rural setting. As stated in Master Responses 3 and 4, the CVFPP does not create any new requirements or assurances for levels of flood protection in the Central Valley; the local findings requirements regarding the required levels of protection were established by the State Legislature with the passage of SB 5. The Central Valley Flood Protection Act of 2008 further clarifies that the CVFPP is a descriptive document, and neither the development nor the adoption of the CVFPP constitutes a commitment by the State to provide any particular level of flood protection (CWC Sections 9603(a) and 9603(b)).

The SSIA also outlines various State investments that would contribute to improved flood-risk management in rural-agricultural areas, and that are aimed at promoting sustainable rural-agricultural economies without inducing imprudent urban development in floodplains (e.g., purchasing agricultural easements from willing landowners, when consistent with local land use planning). The SSIA does not target a minimum level of flood protection for State investments in rural-agricultural areas outside of the small communities because conditions and local interests differ from one area to another, and additional regional planning efforts are needed to formulate solutions that meet community needs and State investment priorities. However, the SSIA proposes (1) projects that maintain levee crown elevations for rural SPFC levees and provide all-weather access roads for inspection and floodfighting; (2) economically feasible projects that resolve known SPFC performance problems, in conjunction with development of criteria for rural levee repairs; (3) system elements (e.g.,

bypass expansion) that lower peak flood stages within some rural channels; and (4) actions to manage residual flood risks.

The State supports efforts to reform FEMA’s NFIP to more equitably reflect corresponding flood risks, including establishing a flood zone for agriculturally based communities to allow replacement of existing structures or reinvestment development in the floodplain. The State also supports identifying a special, lower-premium rate structure that reflects actual flood risks for agricultural buildings in rural-agricultural areas located in Special Flood Hazard Areas. The State will work with local flood management interests to pursue reform of the FEMA NFIP.

For additional details, see Master Responses 3 and 4.

**G\_ YCFB3-19**

The commenter expresses concern that “greater burdens, pressures, risks, and liabilities” will be placed on agricultural and rural areas when compared to urban and urbanizing areas. State law (SB 5) defines an urban level of flood protection for urban and urbanizing areas within the Sacramento–San Joaquin Valley as that level of protection necessary to withstand a 1-in-200-year flood event (CGC Sections 65007, 65865.5, 65962, and 66474.5). Under SB 5, non-urbanized areas are subject to the national FEMA standard of flood protection. Under the terms of SB 5, adoption of the 2012 CVFPP by the Board would trigger the schedule of compliance actions required for cities and counties to make findings related to an urban level of flood protection for urban and urbanizing areas, and the FEMA standard for non-urbanized areas.

As stated in Master Response 4, the SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises. All areas protected by the SPFC would benefit from State investments included in the SSIA to improve residual risk management, such as enhanced flood emergency preparedness, response, and recovery.

As stated in Master Response 3, implementing the SSIA would increase the percentage of the population receiving at least 100-year (1 percent annual chance) flood protection from the current 21 percent to more than 90 percent (CVFPP, page 3-40). The remaining 10 percent of the population would receive benefits through residual risk management actions. Based on initial planning-level cost estimates developed to evaluate elements of various scenarios considered under the 2012 CVFPP, more than 20 percent of total SSIA investments would support rural-agricultural and small community improvements, and residual risk management. In addition,

systemwide elements (which account for almost 40 percent of total SSIA investments) are anticipated to provide flood stage reduction benefits to many of the areas in the system, including small communities and rural-agricultural areas. The SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises.

As stated in Master Response 4, the CVFPP does not include levee design criteria for rural areas, but recognizes that the urban levee design criteria are not always practical or affordable for protecting rural areas. The SSIA does not target a minimum level of flood protection for State investments in rural-agricultural areas outside of the small communities because conditions and local interests differ from one area to another, and additional regional planning efforts are needed to formulate solutions that meet community needs and State investment priorities. DWR supports future development and implementation of rural levee repair criteria in coordination with local and regional flood management agencies.

For additional details, see Master Responses 3 and 4.



**G\_YCFB4**

**Central Valley Flood Area To Be Expanded by 40,000 acres**

From: "Yolo County Farm Bureau" <denise@yolofarmbureau.org>

To: jimpeart@rockatmail.com



**CENTRAL VALLEY FLOOD PROTECTION PLAN** February 21, 2012

G\_YCFB4-01

**IMPORTANT** **IMPORTANT** **IMPORTANT** **IMPORTANT**

The State is working on a flood plan called the Central Valley Flood Protection Plan. It increases the flood bypass areas by over 40,000 acres. This draft program has been put together in a very short amount of time, and it's been difficult to get the word out to landowners. The draft was finalized at the end of December. It's a huge document.

Additional information, including links, regular updates, and key documents, is available on CFBF's new Flood Issues webpage at <http://www.cfbf.com/issues/water/flood/index.cfm>. In addition, you may contact your local county Farm Bureau, or contact Justin Fredrickson, CFBF Environmental Policy Analyst, at 916-561-5673 or [jfredrickson@cfbf.com](mailto:jfredrickson@cfbf.com).

Final comments are due this Friday, February 24th.

This is so important that we are contacting you and asking that you either attend the meeting and make comments, or add your signature to this letter and return it to our office by Thursday, the 23rd (two days from now).

If you can attend the meeting please plan to do so and make comments.

If you cannot attend, please sign the letter and either email, fax or bring it back to us before Friday.

Street Address:	Mailing Address:	Phone: 530-662-6316
Yolo County Farm Bureau	Yolo County Farm Bureau	Fax: 530-662-8611
69 W. Kentucky Ave	PO Box 1556	E-mail: <a href="mailto:tara@yolofarmbureau.org">tara@yolofarmbureau.org</a>
Woodland CA 95695	Woodland CA 95776	

February 21, 2012

State of California  
Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento CA 95821

RE: Agriculture and Central Valley Flood Issues

G\_YCFB4-02

I am unable to attend the meeting on Friday, February 24th when the Central Valley Flood Protection Plan will be discussed. The proposal affects some 40,000 acres of land in the Central Valley. The existing flood system is outdated and needs improvements, but any changes should be thoroughly examined, considered and betted through affected landowners and farmers. Unfortunately, the input from affected landowners and farmers have been limited, and the timeline has very short.

G\_YCFB4-03

I am very concerned about the proposed plan for the following reasons:

G\_YCFB4-04

- \* The potential farmland conversion impacts;
- \* The importance of Central Valley agriculture and the potential impacts on the viability of Central Valley agriculture;
- \* Private property rights;

G\_YCFB4-05

Central Valley Flood Area To Be Expanded by 40,000 acres - YANU: 1/1/11

- G\_YCFB4-06
- G\_YCFB4-07
- G\_YCFB4-08
- G\_YCFB4-09
- G\_YCFB4-10
- G\_YCFB4-11
- G\_YCFB4-12
- G\_YCFB4-13
- G\_YCFB4-14
- G\_YCFB4-15
- G\_YCFB4-16
- G\_YCFB4-17
- G\_YCFB4-18
- G\_YCFB4-19

- \* Impacts on particular parcels, farming operations, reclamation district areas, etc.
- \* Impacts on livelihoods and businesses;
- \* Impacts on property values;
- \* The potential for eminent domain abuses;
- \* The importance of preserving the capacities of the flood bypasses by retaining lands in agriculture;
- \* The potential for conflicts between the flood protection purposes of the bypasses and the prospect of extensive habitat restoration in the bypasses;
- \* Improper subordination in the Plan of traditional flood protection purposes to ecosystem restoration;
- \* Potential redirected impacts, permitting, and legal enforcement to maintain the flood protection functions of weirs and bypasses;
- \* The timing of inundation in the bypasses and the compatibility of farming with future inundation for proposed habitat and fish passage purposes;
- \* Potential redirected impacts and unintended consequences of the Flood Plan, including potential increased pressure on existing levees;
- \* The need for meaningful involvement from farmers, landowners, and other affected interests in rural and agricultural areas;
- \* Assurances associated with potential liabilities under the federal and state endangered species acts;
- \* Imposing flood protection standards on rural and agricultural areas that are unreasonable, impracticable, and ill-suited to a rural setting (inflexible FEMA rules, 100-yr. level of flood protection);
- \* Shifting greater burdens, pressures, risks and liabilities on to agricultural and rural areas when compared to urban and urbanizing areas.

Sincerely,

*Jim Peart*

Printed Name

*Jim Peart*

Signature

Printed Name

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**Click Here for More Information**

[Farm Team Action Alert - Central Valley Flood Protection Program](#)  
[Central Valley Flood Protection Board Meeting Agenda](#)

## **Yolo County Farm Bureau**

### ***Response***

#### ***G\_YCFB4-01***

YCFB distributed basic information about the CVFPP and a request encouraging attendance at upcoming meetings on the CVFPP and the DPEIR, or signatures on a petition noting YCFB's concerns. This comment is noted, but it does not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor does the comment specify additional information needed or particular DPEIR insufficiencies. No further response is necessary.

#### ***G\_YCFB4-02***

As stated in Master Response 13, the CVFPP and related PEIR have included substantial outreach and engagement activities since 2009 to help first develop the goals of the CVFPP, and more recently to allow for comments on the environmental analysis presented in the DPEIR. A full list of participants and forms of engagement related to the CVFPP are provided in Attachment 5, "Engagement Record," in Appendix A, "Central Valley Food Protection Plan." Master Response 13, especially Section b, describes the future opportunities for engagement that will be available to landowners, farmers, and others as further program planning proceeds.

The comments in this letter do not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR. The comments are noted.

#### ***G\_YCFB4-03***

As stated in Master Responses 2 and 3, the CVFPP is a high-level document that describes the State's vision for a sustainable flood management system in the Central Valley through improvements such as bypass expansions. For preliminary planning purposes, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (that is, would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. These preliminary planning estimates will be refined during subsequent project-level analyses. The actual needs for and uses of land, including farmland conversion, will vary depending on the types and locations of specific flood system improvements. The CVFPP, as noted in Sections 3.4.1 and 3.5.1 of Appendix A, "Central Valley Flood Protection Plan," describes State

investments in agricultural conservation easements to help preserve agriculture.

The DPEIR does, in fact, address potential effects on agricultural lands and productivity. As stated in Master Response 2, the DPEIR recognizes that converting lands from agricultural uses would result in potentially significant and unavoidable impacts, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA) in Section 3.3, “Agriculture and Forestry Resources,” of the DPEIR. Many commenters expressed the view that such conversions should not occur, and that including such conversions in the SSIA undervalues agriculture as a primary industry in the Central Valley that provides a range of economic, social, habitat, and other benefits. Many commenters also explained that particular lands have been in family ownership for generations, often dating back to the earliest days of statehood. DWR and the Board respect these benefits and the relationships that many individuals have to any lands that might be converted, which are anticipated to be substantial topics during any project-level public engagement processes. However, the DPEIR has adequately addressed the environmental issues at a program level and no new significant environmental topics or information were raised in the comments.

For additional details related to the potential agricultural land conversion effects of the CVFPP, see Master Response 2. For additional details related to the effects of the CVFPP on agriculture, see Master Responses 2 and 3.

***G\_YCFB4-04***

See response to comment G\_YCFB4-03.

***G\_YCFB4-05***

DWR and the Board recognize that the construction and operation of proposed management actions (i.e., new bypasses, levee setbacks, and expanded floodways) may affect private property rights. As stated in Master Response 2, because the SSIA was developed at a conceptual or program level, it does not identify any specific project; therefore, any lands or property rights that may be needed to implement the plan are unknown at this time. It is anticipated that land uses within any expansions of the flood management system would be a mix of flood facilities and agricultural and environmental conservation uses; however, the exact amount and geographical distribution of these land uses will require further analyses as future specific projects are considered and evaluated.

The conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide



feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified.

The CVFPP states the preference to work with willing landowners for needed land acquisitions. The SSIA includes State investments in agricultural conservation easements, which involves working with willing landowners where easements would be consistent with local land use plans. These easements would be used to preserve agriculture and prevent urban development in current agricultural areas, discouraging conversion to land uses that would increase flood risks within floodplains protected by SPFC facilities. Agricultural conservation easements could be purchased through various DWR programs; an example is DWR's Flood Corridor Program, which focuses on nonstructural flood risk reduction integrated with protection of natural resources and agricultural lands.

DWR and the Board respect private property rights, and all land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable.

For additional details, see Master Response 2.

**G\_YCFB4-06**

As stated in Master Responses 2 and 3, and as discussed in response to comment G\_YCFB4-03 above, the conversion of lands from agricultural uses would result in potentially significant and unavoidable impacts, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA). The PEIR includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) in Section 3.3, "Agriculture and Forestry Resources," of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects

(e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed. Therefore, DWR and the Board have determined that the DPEIR has adequately addressed the environmental issues related to the conversion of agricultural land to nonagricultural uses at a program level. For additional details, see Master Responses 2 and 3.

DWR and the Board are aware that if a future site-specific project is implemented, project-level CEQA compliance may be required to analyze specific environmental impacts and to identify required mitigation measures, where appropriate, including projects that propose converting agricultural lands to nonagricultural uses. See Section 2.5.1, “Implementation in Accordance with Applicable Laws and Regulations,” of the DPEIR, which states that “...subsequent implementation actions stemming from adoption of the proposed program would involve additional project-level environmental review and documentation to the extent required by CEQA and the CEQA Guidelines.”

**G\_YCFB4-07**

This comment raises issues of a social and economic nature, which are beyond the scope of analysis required by CEQA, except to the extent that they may link the proposed project to potentially significant adverse effects on the physical environment or to the extent that they are considered as part of the determination of significance of a physical environmental effect (see State CEQA Guidelines Section 15131). Section 3.16, “Population, Employment, and Housing,” of the DPEIR discusses issues relevant to these topics, and Master Responses 2 and 3 provide additional information on effects related to agricultural land conversion and the sustainability of rural-agricultural economies, respectively.

**G\_YCFB4-08**

This comment raises issues of a social and economic nature, which are beyond the scope of analysis required by CEQA, except to the extent that they may link the proposed project to potentially significant adverse effects on the physical environment or to the extent that they are considered as part of the determination of significance of a physical environmental effect (see State CEQA Guidelines Section 15131). As stated in Master Response 1, concerns were expressed that preliminary identification of conceptual bypass elements and other SSIA system elements might create a “cloud” over the properties, making it difficult to manage, obtain loans for, or sell those properties. DWR and the Board wish to make clear that the conceptual designs reflected in the CVFPP do not reflect a determination regarding any specific properties, and that the potential involvement of

particular properties in any future project is entirely speculative at this time. For additional details, see Master Response 1.

**G\_YCFB4-09**

The commenter states a concern about possible “eminent domain abuses,” but does not further clarify this concern or comment on the environmental analysis provided in the DPEIR. In the event that future steps necessitate the use of eminent domain, such actions would be undertaken by agencies with the legal authority to exercise such powers and in compliance with federal and State law. California state law limits public agencies’ use of eminent domain, and agencies seeking to implement management actions under the CVFPP would be subject to all the restrictions and limitations that exist for other agencies in California. For additional details, see response to comment G\_YCFB4-05.

**G\_YCFB4-10**

As stated in Master Response 2, a portion of the lands and easements needed to implement the SSIA would support improvements to urban levees, but the majority (by surface area) would support floodway expansion and repair and/or reconstruction of levees in rural areas. For preliminary planning purposes, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. However, these preliminary planning estimates will be refined during subsequent project-level analyses. The actual needs for and uses of land will vary depending on the types and locations of specific flood system improvements.

The conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified. The CVFPP states the preference to work with willing landowners for needed

land acquisitions. All land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable. For additional details, see Master Response 2.

As stated in Master Responses 1, 2, and 13, future project-level planning for the CVFPP, including possible bypass expansions and new bypasses, will involve the development of basin-wide feasibility studies, the completion of project-level proposals, and compliance with environmental laws and regulations. During these efforts, opportunities to invest in agricultural easements with willing landowners to preserve agriculture, as well as ensuring compliance with Mitigation Measures AG-1a, AG-1b, and AG-1c (NTMA and LTMA), which address specific ways to lessen impacts on existing agriculture, will occur. For additional details, see Master Responses 1, 2, and 13.

As stated in Master Response 14, both the Board and USACE have statutory roles for oversight of modifications to the State-federal flood management system (the SPFC), executed through their respective project review and permitting authorities. The Board has review and permitting authority under the California Water Code and CCR Title 23 for any project, including those resulting from the CVFPP, that may encroach upon, improve, alter, or affect adopted plans of flood control (including the State-federal flood management systems, regulated streams, and designated floodways under the Board's jurisdiction). DWR and the Board recognize that multiple types of crops are currently cultivated in the floodways which can pass the design flows. When the Board permits an activity in the federal flood control facilities, which includes the bypasses, the Board requires technical information that demonstrates the activity will not affect the design flows. Any future management action undertaken that may affect design flow in a federal flood control facility will need to be designed to pass the design flow.

#### **G\_YCFB4-11**

This comment notes the potential for conflicts between the values of bypasses for flood protection and habitat restoration. The comment does not include specific requests for additional information or concerns with the environmental analysis presented in the DPEIR. As stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)). Among these multiple objectives is the goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk-reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project

compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time. For additional details, see Master Response 7.

The DPEIR prepared for the CVFPP concluded that implementing conservation and habitat restoration actions could adversely affect agricultural land and production (see Section 3.3, “Agriculture and Forestry Resources,” of the DPEIR). Impact AG-3 (NTMA) states, “Integration of environmental conservation elements into NTMAs is designed to enhance habitat and restore natural ecosystem processes and functions. These elements would be developed to increase the quantity, quality, diversity, and connectivity of riparian, wetland, floodplain, emergent, and shaded riverine aquatic habitats. As a result, conversion of agricultural land to nonagricultural uses would result in some areas from implementation of these elements. This land would typically be placed under a conservation easement or some other mechanism would be used to preserve the habitat in perpetuity.”

Impact AG-3 (NTMA) also notes that “Purchasing flood easements could provide beneficial effects by preventing development from occurring on agricultural land and preserving land uses compatible with periodic flooding, which may preserve agricultural land uses. As demonstrated throughout the Central Valley, multiple types of crops are currently cultivated in floodways under appropriate conditions. Conversely, agricultural lands within the floodway may no longer be suitable for certain types of agricultural production because they would be inundated during high-water events. Soil conditions in a parcel may not change, agricultural infrastructure may remain in place (e.g., irrigation facilities), and other factors critical to agricultural productivity may remain unaffected. However, regular inundation within the expanded floodway may make certain types of agricultural production in the floodway no longer feasible.”

As stated in Master Responses 2 and 3, the PEIR includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. Therefore, DWR and the Board have determined that the DPEIR has adequately addressed the environmental issues related to the conversion of agricultural land to nonagricultural uses at a program level. For additional details, see Master Responses 2 and 3.

**G\_YCFB4-12**

As stated in Master Response 19, the primary goal is “to improve flood risk management.” The four supplemental goals, by definition, are supplemental to the primary goal to improve flood risk management.

As further stated in Master Response 19, the California Central Valley Flood Protection Act of 2008 (SB 5) defined multiple objectives for the CVFPP, codified in CWC Section 9616, to be achieved wherever feasible. Goals for the CVFPP were collaboratively drafted by DWR, its partners (the Board and USACE), and interested parties through an extensive communications and engagement process, capturing the guidance and objectives provided by CWC Section 9616. As a result of this process, one primary goal and four supporting CVFPP goals were established and provided guidance in forming specific CVFPP policies and physical elements. The process used to develop CVFPP goals is described in Section 1.6 of the Plan, titled “Formulation of the 2012 Central Valley Flood Protection Plan.” Much of this information is repeated and/or summarized in Section 2.1.2, “Purpose and Objectives of the Proposed Program,” and Section 2.2, “Development of the Proposed Program,” of the DPEIR. For additional details, see Master Response 19.

#### **G\_YCFB4-13**

The commenter notes the need for dedicated funding, permitting, and legal enforcement to maintain flood protection functions. No specific issues related to the environmental analysis presented in the DPEIR are raised in this comment. As stated in Master Responses 14 and 15, the Central Valley Flood Protection Act of 2008 (SB 5) requires DWR to prepare a financing plan for the CVFPP after plan adoption (see Section 4.7 in Appendix A, “Central Valley Flood Protection Plan”). Up to \$1.7 billion of bond funding will be available during the next 5 years for CVFPP-related projects. Use of bond funds will be prioritized based on the severity of flood risks, considering proposed project costs and benefits and contributions to basin-wide solutions (consistent with the CVFPP). After the Board adopts the CVFPP, DWR will create a financing plan for potential legislative actions to fund the next increment of capital improvements, O&M, and residual risk management activities for the CVFPP.

As stated in Master Response 3, the State recognizes potential regional differences in the capacity to pay for flood system improvements and O&M. The CVFPP proposes working with rural interests to develop appropriate criteria for rural levee repairs to cost-effectively address known problems (see CVFPP Sections 3.4.1 and 4.1.4). Further, the plan proposes reviewing O&M roles and responsibilities for SPFC facilities and forming regional maintenance authorities, as appropriate, in the interest of improving maintenance efficiency and more equitably distributing system maintenance costs to beneficiaries. For example, DWR has developed cost-sharing guidelines to promote multiobjective projects and to provide additional financial support for economically disadvantaged areas.

As stated in Master Response 14, both the Board and USACE have statutory roles for oversight of modifications to the State-federal flood management system (the SPFC), executed through their respective project review and permitting authorities. The Board has review and permitting and enforcement authority under the California Water Code and CCR Title 23 for any project, including those resulting from the CVFPP, that may encroach upon, improve, alter, or affect adopted plans of flood control (including the State-federal flood management systems, regulated streams, and designated floodways under the Board's jurisdiction).

Implementing the SSIA requires a wide range of actions for planning, developing, analyzing, constructing, and managing improvements to the SPFC. This work will be organized into several programs, established and led by DWR and implemented in coordination with local, State, and federal partnering agencies. These programs are under DWR's existing FloodSAFE California Program. Each program is responsible for specialized implementation of different portions of the SSIA; together, they cover all work required for implementation and management.

For additional details, see Master Responses 3, 14, and 15.

**G\_YCFB4-14**

As stated in Master Response 1, the PEIR recognizes that converting current land uses (particularly agricultural uses) to bypass and related uses (such as habitat and recreation) would result in potentially significant and unavoidable impacts, particularly on agriculture, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMAs and LTMAs). The timing of inundation in bypasses is a project-level component that cannot be evaluated in a program-level EIR such as the DPEIR. The comment is noted, and potential impacts on the physical environment from the quantities and timing of bypass flooding for flood conveyance, habitat, fish passage, or any other purpose will be addressed in project-level CEQA documents as necessary. The DPEIR has adequately addressed the environmental issues at a program level, and no new significant environmental topics or information were raised in the comments. For additional details regarding new and expanded bypass development, see Master Response 1.

As stated in Master Responses 2 and 3, the DPEIR includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) in Section 3.3, "Agriculture and Forestry Resources," of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition,

during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed. For additional details, see Master Responses 2 and 3.

**G\_YCFB4-15**

As stated in Master Response 12, the State is sensitive to the potential effects of repairs or improvements to SPFC facilities that may result in redirected hydraulic impacts upstream or downstream from these facilities, including potential increased pressure on existing levees. Future feasibility studies are needed to refine the proposed elements of the SSIA, and the ultimate configuration of facilities may vary from those presented in the 2012 CVFPP. Only at that time will the State have project-specific modeling results that indicate the specific magnitude and extent of hydraulic impacts, if any, from planned improvements within the system.

The issue of potentially redirecting hydraulic impacts is also addressed in Section 3.13, "Hydrology," in the DPEIR under Impact HYD-2 (NTMA), Impact HYD-4 (NTMA), Impact HYD-2 (LTMA), and Impact HYD-4 (LTMA). As indicated in these impact discussions, any project proponent implementing a project consistent with the SSIA that would affect flood stage elevations would need to obtain various applicable permits before project implementation (such as Section 408 and 208.10 authorization from USACE and encroachment permits from the Board). The project proponent would need to analyze the potential for the project to locally impede flow or transfer flood risk by causing changes in river velocity, stage, or cross section. Projects would not be authorized if changes in water surface elevation, and thus flooding potential, would increase above the maximum allowable rise set by these agencies. If the design of a project would result in an unacceptable increase in flooding potential, a project redesign or other mitigation would be required to meet agency standards before the project could be authorized and implemented. For additional details, see Master Response 12.

**G\_YCFB4-16**

As stated in Master Responses 13 and 14, anticipated activities after adoption of the 2012 CVFPP include regional flood management planning, development of basin-wide feasibility studies, and completion of project-level proposals and environmental compliance. These efforts will engage local entities and stakeholders to help identify projects to meet local and regional needs for flood management, refine the conceptual system



elements proposed in the adopted plan, and identify specific projects for construction.

As part of regional flood management planning, regional plans will be prepared with active participation by regional implementing, operating, and maintaining agencies; local land use agencies (counties and cities); agricultural and environmental interests; emergency responders; and tribes. This effort will collect on-the-ground information regarding flood risks and needs, identify local and regional improvement projects, assess the performance and feasibility of these projects, and develop basin plans that reflect the priorities of local entities in reducing flood risks in each of the nine regions identified in the CVFPP. Stakeholder engagement will be an important and complex component of the basin-wide feasibility studies. The studies will be conducted in coordination with USACE (and ongoing cost-share feasibility studies) and local implementing agencies. It is anticipated that working groups will form to help evaluate and refine bypass expansion options, identify implementation challenges, and provide input in the planning process. For additional details, see Master Responses 13 and 14.

**G\_YCFB4-17**

This comment raises concerns about assurances associated with potential liabilities under the federal ESA and the CESA. The CVFPP and related DPEIR do not alter these laws or related liabilities for landowners. As stated in Master Response 7, the CVFPP is intended to meet multiple objectives, including the integration of ecosystem benefits. It would be speculative to assume that a private property owner could face additional liabilities under the ESA or CESA as a consequence of a future project. See Master Responses 13 and 14 for additional information about how project proposals under the CVFPP would be developed in the future and public engagement is encouraged in post-adoption processes.

Section 3.6, “Terrestrial Biological Resources,” of the DPEIR discusses the impacts of the proposed program on federally listed and State-listed endangered species. Mitigation Measure BIO-T-3b in Section 3.6 states that “The project proponent will coordinate with the appropriate regulatory agency (e.g., USFWS or DFG) to determine acceptable methods for minimizing or compensating for effects on a species; and applicable State and/or federal permits will be secured and permit requirements will be implemented (see Section 3.6, “Biological Resources—Terrestrial,” of the DPEIR). Mitigation Measure BIO-T-3c states that “The project proponent will consult or coordinate with USFWS under the federal ESA and DFG under the CESA regarding potential impacts on listed plant and wildlife species and associated critical habitat. The project proponent will implement any additional measures developed through the ESA and CESA

consultation processes, including conditions of Section 7 biological opinions and Section 2081 permits” (see Section 3.6, “Biological Resources—Terrestrial,” of the DPEIR).

As stated in Master Response 1, several commenters expressed concern regarding the potential for particular properties to be included in a bypass proposal. Concerns were also expressed that preliminary identification of conceptual bypass designs might create a “cloud” over the properties, making it difficult to manage, obtain loans for, or sell those properties. DWR and the Board wish to make clear that the conceptual designs reflected in the CVFPP do not reflect a determination regarding any specific properties, and that the potential involvement of particular properties in any future bypass project is entirely speculative at this time. Potential agricultural land conversions and the resulting effects are discussed further in Master Responses 2 and 3.

#### ***G\_YCFB4-18***

This comment does not raise issues or concerns about the environmental analysis presented in the DPEIR, but questions whether “unreasonable, impracticable, and ill-suited” flood protection standards would be imposed in a rural setting. As stated in Master Responses 3 and 4, the CVFPP does not create any new requirements or assurances for levels of flood protection in the Central Valley; the local findings requirements regarding the required levels of protection were established by the State Legislature with the passage of SB 5. The Central Valley Flood Protection Act of 2008 further clarifies that the CVFPP is a descriptive document, and neither the development nor the adoption of the CVFPP constitutes a commitment by the State to provide any particular level of flood protection (CWC Sections 9603(a) and 9603(b)).

The SSIA also outlines various State investments that would contribute to improved flood-risk management in rural-agricultural areas, and that are aimed at promoting sustainable rural-agricultural economies without inducing imprudent urban development in floodplains (e.g., purchasing agricultural easements from willing landowners, when consistent with local land use planning). The SSIA does not target a minimum level of flood protection for State investments in rural-agricultural areas outside of the small communities because conditions and local interests differ from one area to another, and additional regional planning efforts are needed to formulate solutions that meet community needs and State investment priorities. However, the SSIA proposes (1) projects that maintain levee crown elevations for rural SPFC levees and provide all-weather access roads for inspection and floodfighting; (2) economically feasible projects that resolve known SPFC performance problems, in conjunction with development of criteria for rural levee repairs; (3) system elements (e.g.,

bypass expansion) that lower peak flood stages within some rural channels; and (4) actions to manage residual flood risks.

The State supports efforts to reform FEMA’s NFIP to more equitably reflect corresponding flood risks, including establishing a flood zone for agriculturally based communities to allow replacement of existing structures or reinvestment development in the floodplain. The State also supports identifying a special, lower-premium rate structure that reflects actual flood risks for agricultural buildings in rural-agricultural areas located in Special Flood Hazard Areas. The State will work with local flood management interests to pursue reform of the FEMA NFIP.

For additional details, see Master Responses 3 and 4.

**G\_YCFB4-19**

The commenter expresses concern that “greater burdens, pressures, risks, and liabilities” will be placed on agricultural and rural areas when compared to urban and urbanizing areas. State law (SB 5) defines an urban level of flood protection for urban and urbanizing areas within the Sacramento–San Joaquin Valley as that level of protection necessary to withstand a 1-in-200-year flood event (CGC Sections 65007, 65865.5, 65962, and 66474.5). Under SB 5, non-urbanized areas are subject to the national FEMA standard of flood protection. Under the terms of SB 5, adoption of the 2012 CVFPP by the Board would trigger the schedule of compliance actions required for cities and counties to make findings related to an urban level of flood protection for urban and urbanizing areas, and the FEMA standard for non-urbanized areas.

As stated in Master Response 4, the SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises. All areas protected by the SPFC would benefit from State investments included in the SSIA to improve residual risk management, such as enhanced flood emergency preparedness, response, and recovery.

As stated in Master Response 3, implementing the SSIA would increase the percentage of the population receiving at least 100-year (1 percent annual chance) flood protection from the current 21 percent to more than 90 percent (CVFPP, page 3-40). The remaining 10 percent of the population would receive benefits through residual risk management actions. Based on initial planning-level cost estimates developed to evaluate elements of various scenarios considered under the 2012 CVFPP, more than 20 percent of total SSIA investments would support rural-agricultural and small community improvements, and residual risk management. In addition,

systemwide elements (which account for almost 40 percent of total SSIA investments) are anticipated to provide flood stage reduction benefits to many of the areas in the system, including small communities and rural-agricultural areas. The SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises.

As stated in Master Response 4, the CVFPP does not include levee design criteria for rural areas, but recognizes that the urban levee design criteria are not always practical or affordable for protecting rural areas. The SSIA does not target a minimum level of flood protection for State investments in rural-agricultural areas outside of the small communities because conditions and local interests differ from one area to another, and additional regional planning efforts are needed to formulate solutions that meet community needs and State investment priorities. DWR supports future development and implementation of rural levee repair criteria in coordination with local and regional flood management agencies.

For additional details, see Master Responses 3 and 4.

# G\_YCFB5

State of California  
Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento CA 95821

RE: Agriculture and Central Valley Flood Issues

G\_YCFB5-01

I am unable to attend the meeting on Friday, February 24th when the Central Valley Flood Protection Plan will be discussed. The proposal affects some 40,000 acres of land in the Central Valley. The existing flood system is outdated and needs improvements, but any changes should be thoroughly examined, considered and betted through affected landowners and farmers. Unfortunately, the input from affected landowners and farmers have been limited, and the timeline has very short.

G\_YCFB5-02

I am very concerned about the proposed plan for the following reasons:

G\_YCFB5-03

- The potential **farmland conversion** impacts;
- **The importance of Central Valley agriculture** and the potential impacts on the **viability** of Central Valley agriculture;

G\_YCFB5-04

- **Private property rights**;

G\_YCFB5-05

- Impacts on particular **parcels, farming operations, reclamation district areas**, etc.

G\_YCFB5-06

- Impacts on **livelihoods and businesses**;

G\_YCFB5-07

- Impacts on **property values**;

G\_YCFB5-08

- The potential for **eminent domain** abuses;

G\_YCFB5-09

- The importance of preserving the capacities of the **flood bypasses** by retaining **MOB5-04** agriculture;

G\_YCFB5-10

- The potential for **conflicts** between the **flood protection** purposes of the bypasses and the prospect of extensive **habitat restoration** in the bypasses;

G\_YCFB5-11

- Improper subordination in the Plan of traditional flood protection purposes to ecosystem restoration;

G\_YCFB5-12

- **The need for dedicated funding, permitting, and legal enforcement** to maintain the flood protection functions of weirs and bypasses;

G\_YCFB5-13

- **The timing of inundation** in the bypasses and the **compatibility** of farming with future inundation for proposed habitat and fish passage purposes;

G\_YCFB5-14

- Potential **redirected impacts and unintended consequences** of the Flood Plan, including potential increased pressure on existing levees;

G\_YCFB5-15

- **The need for meaningful involvement from farmers, landowners, and other affected interests** in rural and agricultural areas;

G\_YCFB5-16

- **Assurances** associated with **potential liabilities** under the federal and state **endangered species acts**;

G\_YCFB5-17

- Imposing **flood protection standards** on rural and agricultural areas that are unreasonable, impracticable, and ill-suited to a rural setting (inflexible FEMA rules, 100-yr. level of flood protection);

G\_YCFB5-18

- Shifting **greater burdens, pressures, risks and liabilities** on to **agricultural and rural areas** when compared to urban and urbanizing areas.

Sincerely,

State of California  
Central Valley Flood Protection Board  
Central Valley Flood Protection Plan  
February 21, 2012

William J. Correa  
Printed Name

Craig M. Wright  
Printed Name

Christopher W. Correa  
Printed Name

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## Yolo County Farm Bureau

### *Response*

#### **G\_YCFB5-01**

As stated in Master Response 13, the CVFPP and related PEIR have included substantial outreach and engagement activities since 2009 to help first develop the goals of the CVFPP, and more recently to allow for comments on the environmental analysis presented in the DPEIR. A full list of participants and forms of engagement related to the CVFPP are provided in Attachment 5, “Engagement Record,” in Appendix A, “Central Valley Food Protection Plan.” Master Response 13, especially Section b, describes the future opportunities for engagement that will be available to landowners, farmers, and others as further program planning proceeds.

The comments in this letter do not raise specific questions or information regarding the adequacy of the environmental analysis provided in the DPEIR, nor do the comments specify additional information needed or particular insufficiencies in the DPEIR. The comments are noted.

#### **G\_YCFB5-02**

As stated in Master Responses 2 and 3, the CVFPP is a high-level document that describes the State’s vision for a sustainable flood management system in the Central Valley through improvements such as bypass expansions. For preliminary planning purposes, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (that is, would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. These preliminary planning estimates will be refined during subsequent project-level analyses. The actual needs for and uses of land, including farmland conversion, will vary depending on the types and locations of specific flood system improvements. The CVFPP, as noted in Sections 3.4.1 and 3.5.1 of Appendix A, “Central Valley Flood Protection Plan,” describes State investments in agricultural conservation easements to help preserve agriculture.

The DPEIR does, in fact, address potential effects on agricultural lands and productivity. As stated in Master Response 2, the DPEIR recognizes that converting lands from agricultural uses would result in potentially significant and unavoidable impacts, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA) in Section 3.3, “Agriculture and Forestry Resources,” of the DPEIR. Many commenters expressed the view that such conversions should not occur, and that including such conversions in the

SSIA undervalues agriculture as a primary industry in the Central Valley that provides a range of economic, social, habitat, and other benefits. Many commenters also explained that particular lands have been in family ownership for generations, often dating back to the earliest days of statehood. DWR and the Board respect these benefits and the relationships that many individuals have to any lands that might be converted, which are anticipated to be substantial topics during any project-level public engagement processes. However, the DPEIR has adequately addressed the environmental issues at a program level and no new significant environmental topics or information were raised in the comments.

For additional details related to the potential agricultural land conversion effects of the CVFPP, see Master Response 2. For additional details related to the effects of the CVFPP on agriculture, see Master Responses 2 and 3.

**G\_YCFB5-03**

See response to comment G\_YCFB5-02.

**G\_YCFB5-04**

DWR and the Board recognize that the construction and operation of proposed management actions (i.e., new bypasses, levee setbacks, and expanded floodways) may affect private property rights. As stated in Master Response 2, because the SSIA was developed at a conceptual or program level, it does not identify any specific project; therefore, any lands or property rights that may be needed to implement the plan are unknown at this time. It is anticipated that land uses within any expansions of the flood management system would be a mix of flood facilities and agricultural and environmental conservation uses; however, the exact amount and geographical distribution of these land uses will require further analyses as future specific projects are considered and evaluated.

The conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide



feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified.

The CVFPP states the preference to work with willing landowners for needed land acquisitions. The SSIA includes State investments in agricultural conservation easements, which involves working with willing landowners where easements would be consistent with local land use plans. These easements would be used to preserve agriculture and prevent urban development in current agricultural areas, discouraging conversion to land uses that would increase flood risks within floodplains protected by SPFC facilities. Agricultural conservation easements could be purchased through various DWR programs; an example is DWR's Flood Corridor Program, which focuses on nonstructural flood risk reduction integrated with protection of natural resources and agricultural lands.

DWR and the Board respect private property rights, and all land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable.

For additional details, see Master Response 2.

**G\_YCFB5-05**

As stated in Master Responses 2 and 3, and as discussed in response to comment G\_YCFB5-02 above, the conversion of lands from agricultural uses would result in potentially significant and unavoidable impacts, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA). The PEIR includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) in Section 3.3, "Agriculture and Forestry Resources," of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed. Therefore, DWR and the Board have determined that the DPEIR has adequately addressed the environmental issues related to the conversion of agricultural land to nonagricultural uses at a program level. For additional details, see Master Responses 2 and 3.

DWR and the Board are aware that if a future site-specific project is implemented, project-level CEQA compliance may be required to analyze

specific environmental impacts and to identify required mitigation measures, where appropriate, including projects that propose converting agricultural lands to nonagricultural uses. See Section 2.5.1, “Implementation in Accordance with Applicable Laws and Regulations,” of the DPEIR, which states that “...subsequent implementation actions stemming from adoption of the proposed program would involve additional project-level environmental review and documentation to the extent required by CEQA and the CEQA Guidelines.”

**G\_YCFB5-06**

This comment raises issues of a social and economic nature, which are beyond the scope of analysis required by CEQA, except to the extent that they may link the proposed project to potentially significant adverse effects on the physical environment or to the extent that they are considered as part of the determination of significance of a physical environmental effect (see State CEQA Guidelines Section 15131). Section 3.16, “Population, Employment, and Housing,” of the DPEIR discusses issues relevant to these topics, and Master Responses 2 and 3 provide additional information on effects related to agricultural land conversion and the sustainability of rural-agricultural economies, respectively.

**G\_YCFB5-07**

This comment raises issues of a social and economic nature, which are beyond the scope of analysis required by CEQA, except to the extent that they may link the proposed project to potentially significant adverse effects on the physical environment or to the extent that they are considered as part of the determination of significance of a physical environmental effect (see State CEQA Guidelines Section 15131). As stated in Master Response 1, concerns were expressed that preliminary identification of conceptual bypass elements and other SSIA system elements might create a “cloud” over the properties, making it difficult to manage, obtain loans for, or sell those properties. DWR and the Board wish to make clear that the conceptual designs reflected in the CVFPP do not reflect a determination regarding any specific properties, and that the potential involvement of particular properties in any future project is entirely speculative at this time. For additional details, see Master Response 1.

**G\_YCFB5-08**

The commenter states a concern about possible “eminent domain abuses,” but does not further clarify this concern or comment on the environmental analysis provided in the DPEIR. In the event that future steps necessitate the use of eminent domain, such actions would be undertaken by agencies with the legal authority to exercise such powers and in compliance with federal and State law. California state law limits public agencies’ use of

eminent domain, and agencies seeking to implement management actions under the CVFPP would be subject to all the restrictions and limitations that exist for other agencies in California. For additional details, see response to comment G\_YCFB5-04.

**G\_YCFB5-09**

As stated in Master Response 2, a portion of the lands and easements needed to implement the SSIA would support improvements to urban levees, but the majority (by surface area) would support floodway expansion and repair and/or reconstruction of levees in rural areas. For preliminary planning purposes, it has been estimated that about 75 percent of lands that could be used for bypass expansion could continue to support agricultural uses (would be compatible with floodways), while about 25 percent would likely be converted to floodways with supplemental ecosystem benefits. However, these preliminary planning estimates will be refined during subsequent project-level analyses. The actual needs for and uses of land will vary depending on the types and locations of specific flood system improvements.

The conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified. The CVFPP states the preference to work with willing landowners for needed land acquisitions. All land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable. For additional details, see Master Response 2.

As stated in Master Responses 1, 2, and 13, future project-level planning for the CVFPP, including possible bypass expansions and new bypasses, will involve the development of basin-wide feasibility studies, the completion of project-level proposals, and compliance with environmental laws and regulations. During these efforts, opportunities to invest in agricultural easements with willing landowners to preserve agriculture, as well as ensuring compliance with Mitigation Measures AG-1a, AG-1b, and

AG-1c (NTMA and LTMA), which address specific ways to lessen impacts on existing agriculture, will occur. For additional details, see Master Responses 1, 2, and 13.

As stated in Master Response 14, both the Board and USACE have statutory roles for oversight of modifications to the State-federal flood management system (the SPFC), executed through their respective project review and permitting authorities. The Board has review and permitting authority under the California Water Code and CCR Title 23 for any project, including those resulting from the CVFPP, that may encroach upon, improve, alter, or affect adopted plans of flood control (including the State-federal flood management systems, regulated streams, and designated floodways under the Board's jurisdiction). DWR and the Board recognize that multiple types of crops are currently cultivated in the floodways which can pass the design flows. When the Board permits an activity in the federal flood control facilities, which includes the bypasses, the Board requires technical information that demonstrates the activity will not affect the design flows. Any future management action undertaken that may affect design flow in a federal flood control facility will need to be designed to pass the design flow.

#### ***G\_YCFB5-10***

This comment notes the potential for conflicts between the values of bypasses for flood protection and habitat restoration. The comment does not include specific requests for additional information or concerns with the environmental analysis presented in the DPEIR. As stated in Master Response 7, the Central Valley Flood Protection Act of 2008 (SB 5) sets legislative direction to meet multiple objectives, where feasible, when proposing improvements to flood management facilities, including integration of ecosystem benefits (CWC Sections 9616(a)(7), 9616(a)(9), and 9616(a)(11)). Among these multiple objectives is the goal of improving ecological conditions on a systemwide basis, using integrated policies, programs, and flood-risk-reduction projects that will help to (1) provide ecological benefits, (2) move beyond traditional project-by-project compensatory mitigation, and (3) create opportunities to develop flood management projects that may be more sustainable and cost-effective over time. For additional details, see Master Response 7.

The DPEIR prepared for the CVFPP concluded that implementing conservation and habitat restoration actions could adversely affect agricultural land and production (see Section 3.3, "Agriculture and Forestry Resources," of the DPEIR). Impact AG-3 (NTMA) states, "Integration of environmental conservation elements into NTMAs is designed to enhance habitat and restore natural ecosystem processes and functions. These elements would be developed to increase the quantity, quality, diversity,

and connectivity of riparian, wetland, floodplain, emergent, and shaded riverine aquatic habitats. As a result, conversion of agricultural land to nonagricultural uses would result in some areas from implementation of these elements. This land would typically be placed under a conservation easement or some other mechanism would be used to preserve the habitat in perpetuity.”

Impact AG-3 (NTMA) also notes that “Purchasing flood easements could provide beneficial effects by preventing development from occurring on agricultural land and preserving land uses compatible with periodic flooding, which may preserve agricultural land uses. As demonstrated throughout the Central Valley, multiple types of crops are currently cultivated in floodways under appropriate conditions. Conversely, agricultural lands within the floodway may no longer be suitable for certain types of agricultural production because they would be inundated during high-water events. Soil conditions in a parcel may not change, agricultural infrastructure may remain in place (e.g., irrigation facilities), and other factors critical to agricultural productivity may remain unaffected. However, regular inundation within the expanded floodway may make certain types of agricultural production in the floodway no longer feasible.”

As stated in Master Responses 2 and 3, the PEIR includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. Therefore, DWR and the Board have determined that the DPEIR has adequately addressed the environmental issues related to the conversion of agricultural land to nonagricultural uses at a program level. For additional details, see Master Responses 2 and 3.

**G\_YCFB5-11**

As stated in Master Response 19, the primary goal is “to improve flood risk management.” The four supplemental goals, by definition, are supplemental to the primary goal to improve flood risk management.

As further stated in Master Response 19, the California Central Valley Flood Protection Act of 2008 (SB 5) defined multiple objectives for the CVFPP, codified in CWC Section 9616, to be achieved wherever feasible. Goals for the CVFPP were collaboratively drafted by DWR, its partners (the Board and USACE), and interested parties through an extensive communications and engagement process, capturing the guidance and objectives provided by CWC Section 9616. As a result of this process, one primary goal and four supporting CVFPP goals were established and provided guidance in forming specific CVFPP policies and physical elements. The process used to develop CVFPP goals is described in Section 1.6 of the Plan, titled “Formulation of the 2012 Central Valley Flood

Protection Plan.” Much of this information is repeated and/or summarized in Section 2.1.2, “Purpose and Objectives of the Proposed Program,” and Section 2.2, “Development of the Proposed Program,” of the DPEIR. For additional details, see Master Response 19.

**G\_YCFB5-12**

The commenter notes the need for dedicated funding, permitting, and legal enforcement to maintain flood protection functions. No specific issues related to the environmental analysis presented in the DPEIR are raised in this comment. As stated in Master Responses 14 and 15, the Central Valley Flood Protection Act of 2008 (SB 5) requires DWR to prepare a financing plan for the CVFPP after plan adoption (see Section 4.7 in Appendix A, “Central Valley Flood Protection Plan”). Up to \$1.7 billion of bond funding will be available during the next 5 years for CVFPP-related projects. Use of bond funds will be prioritized based on the severity of flood risks, considering proposed project costs and benefits and contributions to basin-wide solutions (consistent with the CVFPP). After the Board adopts the CVFPP, DWR will create a financing plan for potential legislative actions to fund the next increment of capital improvements, O&M, and residual risk management activities for the CVFPP.

As stated in Master Response 3, the State recognizes potential regional differences in the capacity to pay for flood system improvements and O&M. The CVFPP proposes working with rural interests to develop appropriate criteria for rural levee repairs to cost-effectively address known problems (see CVFPP Sections 3.4.1 and 4.1.4). Further, the plan proposes reviewing O&M roles and responsibilities for SPFC facilities and forming regional maintenance authorities, as appropriate, in the interest of improving maintenance efficiency and more equitably distributing system maintenance costs to beneficiaries. For example, DWR has developed cost-sharing guidelines to promote multiobjective projects and to provide additional financial support for economically disadvantaged areas.

As stated in Master Response 14, both the Board and USACE have statutory roles for oversight of modifications to the State-federal flood management system (the SPFC), executed through their respective project review and permitting authorities. The Board has review and permitting and enforcement authority under the California Water Code and CCR Title 23 for any project, including those resulting from the CVFPP, that may encroach upon, improve, alter, or affect adopted plans of flood control (including the State-federal flood management systems, regulated streams, and designated floodways under the Board’s jurisdiction).

Implementing the SSIA requires a wide range of actions for planning, developing, analyzing, constructing, and managing improvements to the

SPFC. This work will be organized into several programs, established and led by DWR and implemented in coordination with local, State, and federal partnering agencies. These programs are under DWR's existing FloodSAFE California Program. Each program is responsible for specialized implementation of different portions of the SSIA; together, they cover all work required for implementation and management.

For additional details, see Master Responses 3, 14, and 15.

**G\_YCFB5-13**

As stated in Master Response 1, the PEIR recognizes that converting current land uses (particularly agricultural uses) to bypass and related uses (such as habitat and recreation) would result in potentially significant and unavoidable impacts, particularly on agriculture, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMAs and LTMAAs). The timing of inundation in bypasses is a project-level component that cannot be evaluated in a program-level EIR such as the DPEIR. The comment is noted, and potential impacts on the physical environment from the quantities and timing of bypass flooding for flood conveyance, habitat, fish passage, or any other purpose will be addressed in project-level CEQA documents as necessary. The DPEIR has adequately addressed the environmental issues at a program level, and no new significant environmental topics or information were raised in the comments. For additional details regarding new and expanded bypass development, see Master Response 1.

As stated in Master Responses 2 and 3, the DPEIR includes mitigation measures that further protect agricultural resources, or minimize adverse effects on agricultural resources that could result from implementation of the SSIA. For example, Mitigation Measure AG-1a (NTMA) in Section 3.3, "Agriculture and Forestry Resources," of the DPEIR calls for, among other things, design and siting of projects to minimize conversion of Important Farmland to nonagricultural uses and avoid splitting or fragmenting parcels that would remain in agricultural use. In addition, during construction and operation of facilities, a means of convenient access to agricultural properties would be maintained, agricultural infrastructure and other improvements affected by projects (e.g., irrigation pipelines, power lines, drainage systems) may be replaced or relocated, and various methods of preserving topsoil would be followed. For additional details, see Master Responses 2 and 3.

**G\_YCFB5-14**

As stated in Master Response 12, the State is sensitive to the potential effects of repairs or improvements to SPFC facilities that may result in redirected hydraulic impacts upstream or downstream from these facilities,

including potential increased pressure on existing levees. Future feasibility studies are needed to refine the proposed elements of the SSIA, and the ultimate configuration of facilities may vary from those presented in the 2012 CVFPP. Only at that time will the State have project-specific modeling results that indicate the specific magnitude and extent of hydraulic impacts, if any, from planned improvements within the system.

The issue of potentially redirecting hydraulic impacts is also addressed in Section 3.13, “Hydrology,” in the DPEIR under Impact HYD-2 (NTMA), Impact HYD-4 (NTMA), Impact HYD-2 (LTMA), and Impact HYD-4 (LTMA). As indicated in these impact discussions, any project proponent implementing a project consistent with the SSIA that would affect flood stage elevations would need to obtain various applicable permits before project implementation (such as Section 408 and 208.10 authorization from USACE and encroachment permits from the Board). The project proponent would need to analyze the potential for the project to locally impede flow or transfer flood risk by causing changes in river velocity, stage, or cross section. Projects would not be authorized if changes in water surface elevation, and thus flooding potential, would increase above the maximum allowable rise set by these agencies. If the design of a project would result in an unacceptable increase in flooding potential, a project redesign or other mitigation would be required to meet agency standards before the project could be authorized and implemented. For additional details, see Master Response 12.

#### ***G\_YCFB5-15***

As stated in Master Responses 13 and 14, anticipated activities after adoption of the 2012 CVFPP include regional flood management planning, development of basin-wide feasibility studies, and completion of project-level proposals and environmental compliance. These efforts will engage local entities and stakeholders to help identify projects to meet local and regional needs for flood management, refine the conceptual system elements proposed in the adopted plan, and identify specific projects for construction.

As part of regional flood management planning, regional plans will be prepared with active participation by regional implementing, operating, and maintaining agencies; local land use agencies (counties and cities); agricultural and environmental interests; emergency responders; and tribes. This effort will collect on-the-ground information regarding flood risks and needs, identify local and regional improvement projects, assess the performance and feasibility of these projects, and develop basin plans that reflect the priorities of local entities in reducing flood risks in each of the nine regions identified in the CVFPP. Stakeholder engagement will be an important and complex component of the basin-wide feasibility studies.



The studies will be conducted in coordination with USACE (and ongoing cost-share feasibility studies) and local implementing agencies. It is anticipated that working groups will form to help evaluate and refine bypass expansion options, identify implementation challenges, and provide input in the planning process. For additional details, see Master Responses 13 and 14.

**G\_YCFB5-16**

This comment raises concerns about assurances associated with potential liabilities under the federal ESA and the CESA. The CVFPP and related DPEIR do not alter these laws or related liabilities for landowners. As stated in Master Response 7, the CVFPP is intended to meet multiple objectives, including the integration of ecosystem benefits. It would be speculative to assume that a private property owner could face additional liabilities under the ESA or CESA as a consequence of a future project. See Master Responses 13 and 14 for additional information about how project proposals under the CVFPP would be developed in the future and public engagement is encouraged in post-adoption processes.

Section 3.6, “Terrestrial Biological Resources,” of the DPEIR discusses the impacts of the proposed program on federally listed and State-listed endangered species. Mitigation Measure BIO-T-3b in Section 3.6 states that “The project proponent will coordinate with the appropriate regulatory agency (e.g., USFWS or DFG) to determine acceptable methods for minimizing or compensating for effects on a species; and applicable State and/or federal permits will be secured and permit requirements will be implemented (see Section 3.6, “Biological Resources—Terrestrial,” of the DPEIR). Mitigation Measure BIO-T-3c states that “The project proponent will consult or coordinate with USFWS under the federal ESA and DFG under the CESA regarding potential impacts on listed plant and wildlife species and associated critical habitat. The project proponent will implement any additional measures developed through the ESA and CESA consultation processes, including conditions of Section 7 biological opinions and Section 2081 permits” (see Section 3.6, “Biological Resources—Terrestrial,” of the DPEIR).

As stated in Master Response 1, several commenters expressed concern regarding the potential for particular properties to be included in a bypass proposal. Concerns were also expressed that preliminary identification of conceptual bypass designs might create a “cloud” over the properties, making it difficult to manage, obtain loans for, or sell those properties. DWR and the Board wish to make clear that the conceptual designs reflected in the CVFPP do not reflect a determination regarding any specific properties, and that the potential involvement of particular properties in any future bypass project is entirely speculative at this time.

Potential agricultural land conversions and the resulting effects are discussed further in Master Responses 2 and 3.

**G\_YCFB5-17**

This comment does not raise issues or concerns about the environmental analysis presented in the DPEIR, but questions whether “unreasonable, impracticable, and ill-suited” flood protection standards would be imposed in a rural setting. As stated in Master Responses 3 and 4, the CVFPP does not create any new requirements or assurances for levels of flood protection in the Central Valley; the local findings requirements regarding the required levels of protection were established by the State Legislature with the passage of SB 5. The Central Valley Flood Protection Act of 2008 further clarifies that the CVFPP is a descriptive document, and neither the development nor the adoption of the CVFPP constitutes a commitment by the State to provide any particular level of flood protection (CWC Sections 9603(a) and 9603(b)).

The SSIA also outlines various State investments that would contribute to improved flood-risk management in rural-agricultural areas, and that are aimed at promoting sustainable rural-agricultural economies without inducing imprudent urban development in floodplains (e.g., purchasing agricultural easements from willing landowners, when consistent with local land use planning). The SSIA does not target a minimum level of flood protection for State investments in rural-agricultural areas outside of the small communities because conditions and local interests differ from one area to another, and additional regional planning efforts are needed to formulate solutions that meet community needs and State investment priorities. However, the SSIA proposes (1) projects that maintain levee crown elevations for rural SPFC levees and provide all-weather access roads for inspection and floodfighting; (2) economically feasible projects that resolve known SPFC performance problems, in conjunction with development of criteria for rural levee repairs; (3) system elements (e.g., bypass expansion) that lower peak flood stages within some rural channels; and (4) actions to manage residual flood risks.

The State supports efforts to reform FEMA’s NFIP to more equitably reflect corresponding flood risks, including establishing a flood zone for agriculturally based communities to allow replacement of existing structures or reinvestment development in the floodplain. The State also supports identifying a special, lower-premium rate structure that reflects actual flood risks for agricultural buildings in rural-agricultural areas located in Special Flood Hazard Areas. The State will work with local flood management interests to pursue reform of the FEMA NFIP.

For additional details, see Master Responses 3 and 4.

**G\_YCFB5-18**

The commenter expresses concern that “greater burdens, pressures, risks, and liabilities” will be placed on agricultural and rural areas when compared to urban and urbanizing areas. State law (SB 5) defines an urban level of flood protection for urban and urbanizing areas within the Sacramento–San Joaquin Valley as that level of protection necessary to withstand a 1-in-200-year flood event (CGC Sections 65007, 65865.5, 65962, and 66474.5). Under SB 5, non-urbanized areas are subject to the national FEMA standard of flood protection. Under the terms of SB 5, adoption of the 2012 CVFPP by the Board would trigger the schedule of compliance actions required for cities and counties to make findings related to an urban level of flood protection for urban and urbanizing areas, and the FEMA standard for non-urbanized areas.

As stated in Master Response 4, the SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises. All areas protected by the SPFC would benefit from State investments included in the SSIA to improve residual risk management, such as enhanced flood emergency preparedness, response, and recovery.

As stated in Master Response 3, implementing the SSIA would increase the percentage of the population receiving at least 100-year (1 percent annual chance) flood protection from the current 21 percent to more than 90 percent (CVFPP, page 3-40). The remaining 10 percent of the population would receive benefits through residual risk management actions. Based on initial planning-level cost estimates developed to evaluate elements of various scenarios considered under the 2012 CVFPP, more than 20 percent of total SSIA investments would support rural-agricultural and small community improvements, and residual risk management. In addition, systemwide elements (which account for almost 40 percent of total SSIA investments) are anticipated to provide flood stage reduction benefits to many of the areas in the system, including small communities and rural-agricultural areas. The SSIA describes an approach to managing rural flood risks through a combination of physical improvements and nonstructural actions to protect small communities and support sustainable rural-agricultural enterprises.

As stated in Master Response 4, the CVFPP does not include levee design criteria for rural areas, but recognizes that the urban levee design criteria are not always practical or affordable for protecting rural areas. The SSIA does not target a minimum level of flood protection for State investments in rural-agricultural areas outside of the small communities because conditions and local interests differ from one area to another, and

**2012 Central Valley Flood Protection Plan  
Final Program Environmental Impact Report**

additional regional planning efforts are needed to formulate solutions that meet community needs and State investment priorities. DWR supports future development and implementation of rural levee repair criteria in coordination with local and regional flood management agencies.

For additional details, see Master Responses 3 and 4.



American Farm Bureau Federation/California Farm Bureau Federation

## YOLO COUNTY FARM BUREAU

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SECRETARY/TREASURER  
Denise Sagara

# G YCFB6

April 20, 2012

Central Valley Flood Protection Board  
ATTN: Ms. Nancy Moricz  
3310 El Camino Ave, Room 151  
Sacramento CA 95821

RE: Comments on Draft Central Valley Flood Protection Plan

G\_YCFB6-01 Yolo County Farm Bureau, landowners, growers and Board of Supervisors have been very concerned about the proposed Central Valley Flood Protection Plan and the effects on land in the county.

We learned only in the last few hours before close of comments that the potential footprint of the Flood Plan is much bigger than originally thought: First, there is the large portion we had already heard about: 36,800 acres acquired inside levees for new bypasses and bypass expansions, 10,500 acres of that to become habitat, 75/25 split in Yolo Bypass and elsewhere. Over and above this 40,000 acres amount, however, we only recently learned cost estimates assume 70,000 – 115,000 acres of “agricultural easements” outside bypasses, of which the cost estimate assumes separate flowage easements on 50,000 to 75,000 acreages, to accommodate 200,000 acre-feet of capacity in the Sacramento Valley, and 100,000 acre-feet of transitional storage in the San Joaquin River watershed. Of the total 40,000 acres affected by the proposed “bypass expansions,” the lion’s share—25,500 acres total—is in Yolo Bypass, and most of that in Yolo County.

The plan states that easements would be acquired from “willing sellers,” but then goes on—without local input or prior identification of actual available lands—to incorporate these very large acreages as an assumed component of the overall, long-term blueprint that is the Central Valley Flood Protection Plan.

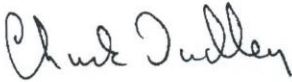
This late-breaking information came to our attention, concerning the greatly expanded agricultural footprint of the project, not because any of this is clearly stated up front in the actual Draft Plan, but rather only because this information was unearthed by chance from an obscure technical appendix to the plan at this very late hour in the public process.

G\_YCFB6-02 In the process itself, many landowners and growers expressed concerns about the proposed plan, ranging from potential farmland conversion impacts, impacts on agriculture, private property rights, flood protection, costs, the timing of inundation in the Yolo Bypass, and potential unintended consequences.

Central Valley Flood Protection Board  
ATTN: Ms. Nancy Moricz  
Comments on Draft Central Valley Flood Protection Plan  
April 20, 2012

G\_YCFB6-03 We join Yolo County Board of Supervisors in expressing grave concerns about the speed with which this plan is being pushed through to adoption, without properly vetting, buy-in, or meaningful participation from local stakeholders. We believe you will be causing extensive and likely irreversible damage to our county and, in the strongest terms, urge you to slow down and take more time to thoroughly consider all of the consequences as you adopt a more workable plan that is beneficial to everyone.

Sincerely,



Chuck Dudley  
President

**Yolo County Farm Bureau, Chuck Dudley**

***Response***

***G\_YCFB6-01***

Implementation of the SSIA includes expansion and extension of the bypass system and levee setbacks. These actions would expand flood system lands up to an additional 35,000–40,000 acres, which would be flooded during high water. The agricultural conservation easements discussed in CVFPP Attachment 8J include lands on the landward side of levees that would be preserved in current land use (primarily agriculture). This would also reduce future development in the floodplains. Although specific agricultural conservation easements (acreages) have not been identified at this time, the assumptions for the distribution of agricultural conservation easements are listed in Table 4-3. These easements are for land that would not be used for the bypass expansion proposed in the 2012 CVFPP.

In addition, where floodways would be expanded, DWR or another appropriate agency would own the land in the floodway in fee title, and land would be leased for agricultural production as appropriate. Developing, maintaining, and/or repairing supporting agricultural infrastructure would be negotiated as part of lease conditions.

The commenter states: “We learned only in the last few hours before the close of comments that the potential footprint of the Flood Plan is much bigger than originally thought.” As stated in Master Response 22, the Public Draft CVFPP was released, on time, on December 30, 2011. Several of the attached supporting documents, specifically the *State Plan of Flood Control Descriptive Document* (November 2010) and the *Draft Flood Control System Status Report* (December 2011), were published before the Public Draft CVFPP and informed its development. Most CVFPP attachments were released with the public draft or in early February 2012; exceptions include the “Flood Damage Analysis,” “Riverine Channel Evaluations,” “Cost Estimates,” and “Reservoir Analysis” attachments, which were released between mid-February and the publication of the DPEIR.

CEQA Guidelines Section 15105(a) states that when a draft EIR is submitted to the State Clearinghouse for review by State agencies, the public review period shall not be less than 45 days. The DPEIR was made available for public comment on March 6, 2012; however, as described above, most attachments (the CFVPP and attachments) were publicly available several months before.

Four comments that were received on the last day of the noticed comment period requested an extension of the time to comment. No requests for extension were made before then. DWR decided not to extend the 45-day public comment period after considering several factors: (1) Many of the key documents had been available for more than 45 days; (2) the vast majority of commenters did not see a need to request an extension; (3) a number of commenters had already responded in a timely manner, many with very detailed comments; (4) the commenters requesting extensions were simultaneously filing comments reflecting a thoughtful review; (5) a highly publicized outreach and engagement program was initiated with stakeholders; and (6) it was necessary to ensure compliance with the rapidly approaching July 1 statutory deadline.

#### **G\_YCFB6-02**

As discussed in Master Response 2, the PEIR recognizes that converting lands from agricultural uses would result in potentially significant and unavoidable impacts, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA). Many commenters expressed the view that such conversions should not occur, and that including such conversions in the SSIA undervalues agriculture as a primary industry in the Central Valley that provides a range of economic, social, habitat, and other benefits. Many commenters also explained that particular lands have been in family ownership for generations, often dating back to the earliest days of statehood. DWR and the Board respect these benefits and the relationships that many individuals have to any lands that might be converted, which are anticipated to be substantial topics during any project-level public engagement processes. However, the DPEIR has adequately addressed the environmental issues at a program level and no new significant environmental topics or information were raised in the comments.

The conceptual elements proposed in the SSIA will be analyzed further and refined during anticipated post-adoption activities. These activities include regional flood management planning, development of basin-wide feasibility studies, completion of project-level proposals and CEQA compliance, development of a Conservation Strategy, and State and USACE permitting. As these post-adoption activities are completed, site-specific proposals will be developed with dimensions, locations, and operational parameters for potential facilities. These follow-on planning efforts are anticipated to commence in mid to late 2012, and will provide opportunities for landowners, local governments, and other stakeholders to participate. The State desires to complete its refined analysis of bypass system expansion and other SSIA system elements as part of basin-wide feasibility studies sometime by 2015, at which time potential needs for land acquisition—in fee title and as easements—could be identified. The



CVFPP states the preference to work with willing landowners for needed land acquisitions. All land acquisitions conducted to implement the SSIA will comply with State and federal laws, as applicable.

As discussed in Master Response 15, the Central Valley Flood Protection Act of 2008 (SB 5) does not commit the State to any specific level of flood protection, action, prioritization, or funding (see CWC Section 9603). In recognition of current funding limitations, State investments under the SSIA would be prioritized commensurate with risks to people and property and opportunities to achieve multiple benefits. Consequently, State investments under the 2012 CVFPP would vary from region to region, depending on the assets at risk (people, property, and infrastructure) and severity of flood risk (frequency and depth). However, most areas protected by the SPFC would realize flood risk management benefits under the SSIA.

As discussed in Master Response 1, expansion of the Sutter, Yolo, and Sacramento bypasses were identified as examples of increasing the overall capacity of the flood management system to convey and attenuate large flood events. Peak flood stages could be reduced along the Sacramento River, and to a lesser extent, along its tributaries. Lowering flood stages throughout much of the system would benefit urban, small-community, and rural-agricultural areas alike. Constructing new bypasses, such as constructing a bypass from the upper Feather River to the Butte Basin and expanding Paradise Cut from the San Joaquin River into the south Delta, would further contribute to reducing peak flood stage along reaches of the Feather River and lower San Joaquin River.

Several factors would be considered in the design and operation of bypass improvement elements: existing land uses, hydraulic considerations, ecosystem restoration features and benefits (including conservation and restoration of aquatic and floodplain habitats), and continued compatible agricultural land uses within the bypass.

**G\_YCFB6-03**

As discussed in Master Response 13, a multiphase public engagement planning process informed development of the 2012 CVFPP and provided many different venues for communicating and engaging with a broad range of partners and interested parties. This extensive public engagement process for plan development, which began in January 2009, involved about 450 people representing public agencies, businesses, interest-based organizations, and members of the public. The process included nearly 300 meetings and more than 40 publications, in addition to development of a public Web site and webinars. A full list of participants and forms of engagement in plan development are available in Attachment 5, “Engagement Record,” in Appendix A, “Central Valley Flood Protection

Plan.” The participants in the engagement process assisted DWR in identifying problems, developing CVFPP goals, identifying the range of management actions to consider in the CVFPP, and reviewing and commenting on the draft content of the CVFPP.

**Engagement Specifics:**

Phase 1 of the public engagement planning process focused on identifying problems and needs and crafting specific goals for the CVFPP. A variety of regional and topic-based work groups formed during this phase. Phase 2 focused on identifying individual actions that could be taken to achieve the CVFPP goals, and engaged stakeholders through continued regional and topic-based work groups and public workshops.

As discussed in Master Response 14, the SSIA is a conceptual plan for flood system improvements, and additional post-adoption work is needed to refine its individual elements. Anticipated post-adoption activities include regional flood management planning, development of basin-wide feasibility studies and the CVFPP Financing Plan, completion of project-level proposals and environmental compliance, development of the Conservation Strategy, and State and USACE permitting.

Regional flood management planning, to be conducted in each of nine regions identified in the 2012 CVFPP, is an important next step in identifying specific improvements to rural-agricultural areas, small communities, and urban areas consistent with the SSIA. Upon CVFPP adoption, DWR will work closely with local entities to collect on-the-ground information regarding flood risks and needs, identify potential local and regional improvement projects, assess the performance and feasibility of these projects, and develop proposals that reflect the priorities of local entities in reducing flood risks. Each regional plan will present an assessment of proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution.



# Yuba-Sutter Farm Bureau

*Serving Agriculture Since 1919*

## G\_YSFB1

March 22, 2012

Mr. Bill Edgar, President  
State of California  
Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento CA 95821

RE: Comments on the Draft 2012 Central Valley Flood Protection Plan and Draft Environmental Impact Report

Dear President Edgar:

G\_YSFB1-01 The Yuba-Sutter Farm Bureau (YSFB) would like to thank the board for your time and effort in providing a public forum for discussion on the Central Valley Flood Protection Plan, and scheduling more public outreach hearings than are required by law. We are also encouraged by the pledges from staff to improve the outreach to stakeholders and incorporate a grassroots structure to the plan. However, there are several areas of the plan with which we have concerns, and the YSFB would like to offer the following recommendations for change:

1. It is time for a fundamental shift in the practices by the board and the State to preserve, protect and respect agriculture and rural communities. The proposed plan affects some 40,000 acres of agricultural land in the Central Valley. YSFB would like to see the board work towards minimizing all agricultural impacts from this plan. Instead of losing some of California's most productive agricultural ground, try to focus on improving the existing bypass system. Expansion and incorporation of habitat should be a last resort; there must be a focus on retaining agriculture uses for the long term, and finding a new way to encourage environmental projects that work cooperatively with agriculture instead of at the expense and loss of productive land.

G\_YSFB1-02 2. The plan must make parallel investments to both urban and rural communities. There needs to be a clear commitment made and funding identified, that will address improvements specific to rural areas. Seventy-five percent of the levees analyzed by the plan are rural, yet less than fifteen percent of the plan's funds are dedicated to improving these levees. This is an inequitable allocation for those who have to live in these "high-risk" communities. Rural areas should not be an afterthought when it comes to funding and the commitment of the plan to provide for these areas. The existing language of "if funding is available" or "where feasible" is not acceptable. The YSFB wants to see hard commitments in the plan that provide specific funding, and provide it within the first five years of the program.

G\_YSFB1-03 3. YSFB asks that the board work with local communities during present and future phases of the plan's implementation process, to ensure that the specific concerns of each area are given their due diligence. Drawing on the knowledge, insight and expertise of locals will achieve a more successful plan and provide much needed cost savings. If the State desires a plan that improves flood control and attains the public's buy-in, then grass roots, bottom-up planning and implementation is necessary.

G\_YSFB1-04 4. To protect our local legacy communities and preserve the farms that encompass them, YSFB urges the board to recognize the critical need for a FEMA Ag Zone. Plan language should encourage FEMA to adopt policy that allows for the continued growth of agriculture in FEMA floodplain areas while providing reasonably priced insurance. One of the best resources for determining the specific language needed in the plan is the Agricultural Floodplain Management Alliance (AFMA) of which YSFB is a member. We would like to see a commitment from the board to work with AFMA to ensure protection of legacy communities and agriculture.

G\_YSFB1-05

5. Levee setbacks and bypass expansions are bad for agriculture. YSFB believe the focus of the plan should be to fix and maintain the current bypass system. Habitat encroachment has managed to negatively interfere with management of the current system; vegetation has perpetually overgrown and is preventing our waterways from flowing freely. If it does become necessary to expand the bypass, then the process needs to start at the bottom of the system and be driven by a local, grassroots process. If land has to be acquired we strongly recommend that policy favor voluntary participation between willing sellers before condemnation. Condemnation procedures should only occur after all feasible alternatives are exhausted. At which point, landowner compensation must include all possible benefits for the landowner's contribution to the system-wide aspect of the plan.

The Yuba Sutter Farm Bureau requests that these recommendations be given full consideration by the board. We hope to see them incorporated into the plan, and look forward to participating in the next stage of the planning process. It is our goal to find a way to work together to achieve the needs of the agricultural community. Yuba Sutter Farm Bureau believes these needs include providing improved flood protection but balancing that with protecting our valuable farmland and legacy communities.

Sincerely,

A handwritten signature in black ink, appearing to read 'TB', with a horizontal line extending to the right.

Tara Brocker  
President

## Yuba Sutter Farm Bureau

### *Response*

#### **G\_YSFB1-01**

As stated in Master Response 2, the PEIR recognizes that converting lands from agricultural uses would result in potentially significant and unavoidable impacts, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA). Many commenters expressed the view that such conversions should not occur, and that including such conversions in the SSIA undervalues agriculture as a primary industry in the Central Valley that provides a range of economic, social, habitat, and other benefits. Many commenters also explained that particular lands have been in family ownership for generations, often dating back to the earliest days of statehood. DWR and the Board respect these benefits and the relationships that many individuals have to any lands that might be converted, which are anticipated to be substantial topics during any project-level public engagement processes. However, the DPEIR has adequately addressed the environmental issues at a program level and no new significant environmental topic or information was raised in the comments.

#### **G\_YSFB1-02**

As stated in Master Response 4, the SSIA identifies minimum flood protection targets when State investments are made to protect public safety in urban areas and small communities (protection from 200- and 100-year flood events, respectively). However, the plan acknowledges that State investments alone cannot achieve these targets in all communities without leveraging federal and local funds, and encourages higher levels of flood protection whenever feasible. The SSIA also outlines various State investments that would contribute to improved flood-risk management in rural-agricultural areas, and that are aimed at promoting sustainable rural-agricultural economies without inducing imprudent urban development in floodplains. The SSIA does not target a minimum level of flood protection for State investments in rural-agricultural areas outside of the small communities because conditions and local interests differ from one area to another, and additional regional planning efforts are needed to formulate solutions that meet community needs and State investment priorities. However, the SSIA includes various options for addressing flood risks in rural-agricultural areas, including the following:

- Projects to maintain levee crown elevations for existing rural SPFC levees and provide all-weather access roads for inspection and floodfighting

- Economically feasible projects to resolve known SPFC performance problems, in conjunction with development of criteria for rural levee repairs
- System elements (such as new and expanded bypasses) that would lower water surface elevations within some rural and urban channels

All areas would benefit from State investments in the SSIA to improve residual risk management, such as enhanced flood emergency preparedness, response, and recovery.

### **G\_YSFB1-03**

As stated in Master Response 13, anticipated activities after adoption of the 2012 CVFPP include regional flood management planning, development of basin-wide feasibility studies, and completion of project-level proposals and environmental compliance. These efforts will engage local entities and stakeholders to help identify projects to meet local and regional needs for flood management, refine the conceptual system elements proposed in the adopted plan, and identify specific projects for construction.

As part of regional flood management planning, regional plans will be prepared with active participation by regional implementing, operating, and maintaining agencies; local land use agencies (counties and cities); agricultural and environmental interests; emergency responders; and tribes. This effort will collect on-the-ground information regarding flood risks and needs, identify local and regional improvement projects, assess the performance and feasibility of these projects, and develop plans that reflect the priorities of local entities in reducing flood risks in each of the nine regions identified in the CVFPP. Each plan will also assess proposed project costs and benefits, considering potential contributions to an integrated and basin-wide solution. Development of regional plans and formulation of specific capital improvement projects will be coordinated with other overlapping planning efforts by identifying common goals and pursuing opportunities to collaborate and reduce potential conflicts.

It is anticipated that work groups will form to help evaluate and refine physical options for system elements (e.g., bypass expansion and new bypasses), identify implementation challenges, and provide input into the planning process. The feasibility studies will be conducted in close coordination with USACE (and ongoing federal feasibility studies) and local implementing agencies.

The regional and basin-wide feasibility planning efforts will help identify specific improvement projects for design and environmental review. Stakeholders and the public will have additional opportunities to provide

input. The draft feasibility reports and any accompanying environmental documentation will be made available to the public for review and comments.

**G\_YSFB1-04**

The State supports efforts to reform FEMA's NFIP to more equitably reflect corresponding flood risks, including establishing a flood zone for agriculturally based communities to allow replacement of existing structures or reinvestment development in the floodplain. The State also supports identifying a special, lower-premium rate structure that reflects actual flood risks for agricultural buildings in rural-agricultural areas located in Special Flood Hazard Areas. The State will work with local flood management interests to pursue reform of the FEMA NFIP.

As stated in Master Response 13, DWR will engage regional flood planning partners to develop and implement communication strategies with broad interest groups to brief them on flood management planning in their regions. Regional implementing and operating agencies, land use agencies, and interest groups will be invited to participate in the planning process. Each regional planning process will seek input, as appropriate, from agricultural interests, environmental interests, permitting agencies/resource agencies, local emergency responders, tribes, and other stakeholders.

**G\_YSFB1-05**

As stated in Master Response 1, the PEIR recognizes that converting current land uses (particularly agricultural uses) to bypass and related uses (such as habitat and recreation) would result in potentially significant and unavoidable impacts, particularly on agriculture, as analyzed in Impacts AG-1, AG-2, and AG-3 (NTMA and LTMA). Many commenters expressed the view that such conversions should not occur, and that including such conversions in the SSIA undervalues agriculture as a primary industry in the Central Valley that provides a range of economic, social, habitat, and other benefits. Many commenters also explained that particular lands have been in family ownership for generations, often dating back to the earliest days of statehood. DWR and the Board respect these benefits and the relationships that many individuals have to any lands that might be converted, which are anticipated to be substantial topics during any project-level public engagement processes. However, the DPEIR has adequately addressed the environmental issues at a program level and no new significant environmental topic or information was raised in the comments.

As stated in Master Response 2, in addition to expansion of the bypass system, levee reconstruction, and other elements, the SSIA includes State investments in agricultural conservation easements, which involves

working with willing landowners where easements would be consistent with local land use plans. These easements would be used to preserve agriculture and prevent urban development in current agricultural areas, discouraging conversion to land uses that would increase flood risks within floodplains protected by SPFC facilities. Agricultural conservation easements could be purchased through various DWR programs; an example is DWR's Flood Corridor Program, which focuses on nonstructural flood risk reduction integrated with protection of natural resources and agricultural lands.





# Yuba-Sutter Farm Bureau

*Serving Agriculture Since 1919*

## G\_YSFB2

April 20, 2012

Mr. Bill Edgar, President  
State of California  
Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento CA 95821

RE: **ADDITIONAL** Comments on the Draft 2012 Central Valley Flood Protection Plan and Draft Environmental Impact Report

Dear President Edgar:

G\_YSFB2-01 It has just come to the attention of The Yuba-Sutter Farm Bureau (YSFB) in Appendix A (the "CVFPP Cost Estimate Methodology") to Attachment 8J to the Flood Plan ("Cost Estimates" document).in Table 4-0, Flood Management Elements, that we have been misled about the extent of the impact on agricultural lands. The Draft report and Department of Water Resource's staff have continually insisted that the impact to agriculture would be in the range of 40,000 acres. A number we already feel is excessive and intrusive to production agricultural lands in California. Now we discover that the plan actually calls for an additional 70,000 to 115,000 acres in agricultural easements. The intended use of these easements includes temporary and periodic storage of peak flood flows or better known as **Transitory Storage** locations. Not only do we feel deceived and have lost all confidence in the integrity of the process but this is exactly what we do not want to see happen to our farms and legacy communities. We do not believe less populated areas in the agricultural regions should be the relief valve for the more populated urban areas. I cannot express strongly enough that this additional acreage is absolutely unacceptable to the YSFB and burying this in the appendix of the document, failing to included this information in the public outreach hearings, and neglecting to bring it up anytime during discussions with the agricultural community is unethical. We have felt all along that the time frame associated with this process was too short and that the public did not have sufficient time to review this information. This is what we feared would happen if the document was pushed through and not given the necessary time for comprehensive analysis.

Sincerely,

Tara Brocker  
President

## **Yuba Sutter Farm Bureau**

### ***Response***

#### ***G\_YSFB2\_01***

Implementation of the SSIA includes expansion and extension of the bypass system and levee setbacks. These actions would expand flood system lands up to an additional 35,000 to 40,000 acres, which would be flooded during high water. The agricultural conservation easements described in Attachment 8J include lands on the landward side of levees that will be preserved in current land use (primarily agriculture). This will also reduce future development in the floodplains. While specific agricultural conservation easements (acreages) have not been identified at this time, the assumptions for the distribution of agricultural conservation easements are listed in Table 4-3. These easements are for land that will not be used for the bypass expansion proposed in the 2012 CVFPP.