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BEFORE THE

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

HEARING IN THE MATTER OF CALIFORNIA DEPARTMENT OF WATER RESOURCES AND UNITED STATES BUREAU OF RECLAMATION REQUEST FOR A CHANGE IN POINT OF DIVERSION FOR CALIFORNIA WATER FIX	TESTIMONY OF JOSE D SETKA (Hearing Part 2)

I, JOSE D. SETKA, do hereby declare:

I. INTRODUCTION

I am the Manager of the Fisheries & Wildlife Division at the East Bay Municipal Utility District (EBMUD). I have been employed by EBMUD working on Mokelumne River fisheries issues for over 20 years, since 1995. I graduated from the University of California, Davis, with a Bachelor of Science Degree in Wildlife & Fisheries Biology, and, prior to my joining EBMUD, was a fisheries biologist at the Natural Resources Consulting Services. I've also worked on fisheries projects in Alaska, Oregon, and Nevada. I have taught courses in Salmonid Biology at the University of California Extension, have authored or co-authored numerous reports and publications, and have given multiple presentations. During the course of my 25 year career working on the Mokelumne River and Delta, I have conducted field studies, worked on restoration project design teams, published research results, and continued work on collaborative stakeholder teams to improve the ecology of the river. As a result of my work, I have a deep knowledge of the Mokelumne River fishery ecosystem and the Mokelumne-origin anadromous fishery.

My testimony concerns the impacts of the Delta Cross Channel (DCC) on the Mokelumne-origin fall-run Chinook salmon anadromous fishery. While the fishery impacts have long occurred, the changes requested by Petitioners California Department of Water Resources (DWR) and United States Bureau of Reclamation (USBR) for their proposed WaterFix Project (Project) could make the problems worse, thereby unreasonably affecting the fishery and associated public trust resources. To avoid these additional Project-related fishery and public trust impacts, EBMUD proposes a mitigating condition.

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II. BACKGROUND

A. The Mokelumne River

The Mokelumne River is a snow-fed system, draining approximately 627 square miles of the central Sierra Nevada. Its headwaters originate in the El Dorado National Forest, some 40 miles south of Lake Tahoe, at approximately 10,000 feet (ft) above mean sea level. The Lower Mokelumne River stretches approximately 70 river miles from Camanche Dam to its confluence with the San Joaquin River within the central Sacramento-San Joaquin Delta (Delta) (Appendix A, Figure 1). The main tributaries to the Lower Mokelumne River are Murphy Creek, Dry Creek, and the Cosumnes River. Between Thornton (at New Hope Landing) and the San Joaquin River confluence, the Mokelumne River is connected to the Sacramento River via the DCC and Georgiana Slough and to the central Delta via Little Potato and Little Connection Sloughs. The Mokelumne is a small river, constituting about 1% of the total Central Valley/Delta watershed.

1. The Mokelumne River Anadromous Fishery

EBMUD began a comprehensive fisheries management program on the Mokelumne River in 1990. The program assumed its present form in 1998 with the development of a partnership between EBMUD, the California Department of Fish & Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS), formally known as the Lower Mokelumne River Partnership. This Partnership was codified in the Joint Settlement Agreement (JSA), a multi-pronged settlement between EBMUD and the resource agencies designed to enhance protection of lower Mokelumne River fishery resources. The JSA includes a schedule of flows that EBMUD must release to the lower Mokelumne River. EBMUD's water releases vary depending on water year type and time of year and are tailored to the life stages of the anadromous fisheries. The JSA also requires riparian corridor habitat enhancement work which EBMUD has completed and continues to expand upon, including annual gravel enhancement projects in the Mokelumne River to successfully promote natural spawning, riparian

restoration, the Murphy Creek dam removal and habitat improvement project, and construction of juvenile rearing side channels and floodplain habitat. EBMUD also conducts a detailed study and monitoring program of the anadromous fisheries and the riparian ecosystem. Monitoring activities include upstream migration counts, redd counts (salmon and steelhead nests), outmigration counts, and fish community surveys.

A key component of the JSA and associated fisheries management is the Mokelumne River Fish Hatchery, which was completed in 1964 as mitigation for Camanche Dam. The facility is located on the south bank of the Mokelumne River at the base of Camanche Dam. The facility is owned and funded by EBMUD, and operated by CDFW. As part of the JSA, EBMUD implemented a $13 million rebuild of the facility completed in 2002. Programs currently run at the facility include mitigation for fall-run Chinook salmon and steelhead trout, along with an enhancement program funded by Commercial Salmon Stamp proceeds.

As a result of the JSA and the efforts of the Lower Mokelumne River Partnership, the annual average adult Chinook salmon escapement on the lower Mokelumne River has more than doubled since the implementation of JSA flow and non-flow measures, from a pre-JSA average of 3,636 fish to a post-JSA average of approximately 9,000 fish as of 2016 (Appendix A, Figure 2). Five of the fishery's top six returns ever recorded occurred between 2011-2016, including a record return of 18,596 fall-run Chinook salmon in 2011. The continued string of above average returns is indicative of the fishery's positive response to the adaptive management actions implemented by EBMUD and the Lower Mokelumne River Partnership. Even when California was mired in the 2012 to 2015 drought, which saw widespread altered flow regimes and poor ocean conditions, the lower Mokelumne River Chinook salmon population continued to demonstrate characteristics consistent with long-term sustainability.

In fact, the Mokelumne River's salmon population is one of the few nearing the established Central Valley Project Improvement Act (CVPIA) fish doubling goal established by the USFWS Anadromous Fish Restoration Program (AFRP). The

AFRP's established fish doubling goal for the Mokelumne River is 9,300 Chinook salmon. As of 2015, the Mokelumne River had achieved an AFRP population target of 8,976, which represents a higher percentage toward meeting the fish doubling goal than nearly all other Central Valley river populations.

In addition to the substantial returns to the river, Mokelumne River origin salmon significantly contribute to the Central Valley Chinook salmon population and associated commercial and recreational sport fisheries. Even though the Mokelumne is a small river that comprises approximately 1 % of the Delta watershed, in most years Mokelumne River origin salmon make up approximately 15% to 20% of the ocean commercial and recreational catch off the California coast.

The lower Mokelumne River also supports a population of federally threatened Central Valley steelhead. Under the current federal listing the lower Mokelumne River is included as habitat for the species and any non-hatchery steelhead within the lower river are covered under the listing.

B. <u>The Delta Cross Channel</u>

The DCC was completed by USBR in 1951 to reroute Sacramento River water out of its natural channel and into the Central and Eastern Delta for conveyance southward to the Central Valley Project (CVP) and State Water Project (SWP) export facilities. The DCC is located on the Sacramento River near Walnut Grove, California (Appendix A, Figure 3). The DCC connects to Snodgrass Slough, which ultimately connects to the Delta forks of the Mokelumne River. Flows into the DCC are controlled by two 60 x 30ft radial gates, and the Cross Channel's capacity is approximately 3,500 cfs. In essence, when it is open, the DCC reconfigures the Delta by channeling flows away from the Sacramento River to the Central and Eastern Delta. The gates are generally open from June through September to convey water to the SWP and CVP project pumps while meeting water quality standards contained in SWRCB D-1641. Additionally, as part of Action Suite IV.1 included in the National Marine Fisheries Service (NMFS) 2009 Biological Opinion on the Long Term Coordinated Operation of

the CVP and SWP, the DCC is required to be closed during October and November when fish monitoring indicates that juvenile salmonids are entering the Delta and D-1641 water quality criteria are met (Appendix A, Table 1).

C. DCC Impacts to the Mokelumne River Anadromous Fishery

The use of the DCC to convey Sacramento River water through the Mokelumne River Delta forks results in the straying of salmon. In this section of testimony I summarize what straying is, then review agency recognition of the fishery problems caused by having the DCC open in the critical up-migration period for fall-run Chinook salmon. I include a summary of efforts to implement periodic closures of the DCC during this critical period.

1. Straying

Pacific salmon, of which Chinook salmon is one species, generally return to their river of origin (their natal river) to spawn. The term “stray” is used to describe an individual salmon that returns to a river other than its natal river. While some small percentage of straying is normal, larger straying rates can potentially lead to a number of problems. The most significant issue related to excess straying is the reduction of fish returning to their natal river, which reduces the overall population for that river. Another issue is related to the concept of river specific stocks or populations. There is evidence that salmon are able to adapt to conditions within their natal watershed. When fish stray they may negatively impact existing population genetics within the non-natal river to which they stray. Finally, under the CVPIA/AFRP, the Mokelumne River has an established fish doubling goal. When operations of other facilities, such as the DCC, lead to increases in straying of Mokelumne-origin anadromous fish, it affects the ability to meet that goal.

2. When the DCC is Open During the Fall, It Causes Adverse Impacts

When the DCC is open during October – November in the up-migration season for Mokelumne-origin fall-run Chinook salmon, it causes adverse impacts on that fishery

by providing false migratory cues, leading to straying. This issue was acknowledged as early as 1989 by the Mokelumne River Technical Advisory Committee, noting that the high flows of the Sacramento River entering the Mokelumne River through the open DCC impeded upstream migration of salmon. As summarized by example, below, the issues caused by such fall openings of the DCC have since been repeatedly raised by the fishery resource and other agencies.

a. CDFW's 2012 Recommendations Regarding DCC Operations

In CDFW's[1] May 2, 2012 written comments to the State Water Board in response to the Notice of Preparation for Environmental Documentation on the Update and Implementation of the Bay-Delta Plan, CDFW addressed DCC Gate Closure Objectives, noting that:

> During October, adult fall-run Chinook salmon are moving up through the Delta towards their natal spawning grounds and the open DCC gates can cause straying of adult salmon as Sacramento River water is sent into the Mokelumne and San Joaquin Rivers. Recent studies in the Mokelumne River have shown that a combination of pulse flows along with the closure of the DCC gates in October can not only increase the number of salmon returns, it can also cut down on the stray rates of salmon from the Mokelumne going into other rivers, in particular the American River. (Appendix B, May 2, 2012 CDFW Comment Letter, page 3.)

CDFW therefore recommended the State Water Board evaluate potential changes to DCC Gate Closure Objectives "that would close the gate during all or a portion of October" to strengthen migration cues for fish and benefit both Sacramento and Mokelumne-origin fall-run Chinook salmon.[2]

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[1] The May 2, 2012 letter was sent by the California Department of Fish & Game, before its name changed to the California Department of Fish & Wildlife (CDFW). For purposes of this testimony, I refer to the agency by its current name, CDFW.

[2] Part of the support for the request was based on results from 2010 and 2011 DCC closures. Specifically, the SWRCB was informed by CDFW that 2010-2011 studies involving October pulse flows and DCC closures increased salmon returns to the Mokelumne River and decreased the stray rates of Mokelumne-origin salmon to the American River.

b. Lower Mokelumne River Partnership DCC Closure Requests

As part of the Lower Mokelumne River Partnership, the resource agencies (CDFW and USFWS) have repeatedly requested USBR to close the DCC during the fall up-migration season to reduce straying of Mokelumne-origin fall-run Chinook salmon. The details of the closure requests are explained more fully below, but it is important to note that these requests call out the fact that operation of the DCC during the up-migration season "is believed to increase straying" and noting that "When the DCC is open, the Mokelumne River becomes the conveyance corridor for Sacramento River water serving the export pumps in the south Delta." (Appendix C, Partnership's April 20, 2010 letter to USBR.)

c. USBR Plan to Study DCC Closures

In September 2012, USBR prepared a Final Environmental Assessment of a proposed Delta Cross Channel Temporary Closure Multi-Year Study (2012 Closure Study). (EBMUD-182.) In describing the rationale for the proposed study, USBR explained that when the DCC is open, water flows from the Sacramento River into the South and North Delta forks of the Mokelumne River toward the SWP and CVP export pumps, and that the Delta forks of the Mokelumne River are the key upstream migratory pathway for fall-run Chinook salmon and Central Valley steelhead returning to the Lower Mokelumne River to spawn. "Based on the volume of water transferred through the DCC and Mokelumne forks, the olfactory cue from the Mokelumne River can be diminished due to Sacramento River flows diverted through the DCC." (2012 Closure Study, Page 7.) The 2012 Closure Study hypothesized that closures of the DCC would strengthen the migration olfactory cues for up-migrating fish.

d. The BDCP 2010 Working Draft

The November 18, 2010 Working Draft of the Bay Delta Conservation Plan (Working Draft)[3] summarized problems associated with the DCC, noting in particular

[3] The Working Draft was included in the Project's December 2016 Final Environmental Impact Report/Environmental Impact Statement (Final EIR/EIS) at Chapter 3, Appendix 3A, Attachments 6 and 7. The Final EIR/EIS is identified as SWRCB-102.

that when the DCC is open during the fall-run up-migration period, anadromous fish are impacted by the creation of false migratory cues. (Working Draft, pages 3-327 to 3-328.) False migratory cues can lead to delayed spawning. The Working Draft reported that increasing the duration of DCC closures would allow more anadromous fish below the DCC to directly sense cues to migrate to upstream habitat. To address these problems, the Working Draft proposed long-term operational criteria, including additional DCC gate closures in October and November of 15 days per month if fish are present (Working Draft, Table 3-13). Doing so would improve the strength of migratory cues and reduce false cues for adult migrating steelhead trout and Chinook salmon.

e. 2017 DCC Closures to Protect Coleman Fish

Due to poor temperatures in the Sacramento River related to drought conditions, Coleman National Fish Hatchery trucked 50% of their production in 2013 and 100% in 2014. Initial return data from the 2013 releases indicate that significant straying occurred. In order to prevent or minimize straying of the 2014 releases when they returned three years later, CDFW requested a closure of the DCC in fall 2017, from September 11, 2017 potentially through mid-November 2017, in order to improve migratory cues for the fall run adult Sacramento origin salmon and to reduce straying of these fish to the interior Delta. In response to this request, the DCC was repeatedly closed for five days a week (Monday through Friday) beginning September 18, 2017.

While this 2017 DCC closure measure was designed to benefit the Sacramento River Coleman National Fish Hatchery stock, the fall closure of the DCC appears to have also benefitted the Mokelumne River fishery. Although the current season is far from over, returns to the Mokelumne River through mid-November 2017 have already exceeded 16,000 fish, well above the full year post-JSA average of 9,000 fish.

3. Past Efforts to Address the DCC Problem by Requesting Closure of the DCC

The 2008 collapse of the Central Valley fall-run Chinook salmon resulted in a renewed interest in the DCC's effects on salmonid migration. In 2008, over 90% of

Mokelumne-origin Chinook salmon strayed to other systems, most of which went to the American River (Appendix A, Figure 4). Numerous management actions were implemented through the Lower Mokelumne River Partnership to reduce straying of Mokelumne-origin salmon, including relocating release sites for hatchery production, implementing pulse flows and adding netpens for releases. Based on the known problems caused by an open DCC during the fall migration season, efforts were initiated to begin advocating for periodic closures of the DCC during the key migration month of October.

Beginning in the fall of 2009, the Lower Mokelumne River Partnership began requesting periodic closures of the DCC. For example, in September 2009, CDFW, on behalf of the Lower Mokelumne River Partnership, asked USBR to close the DCC from October 5 through 17. The requested closure coincided with planned pulse flows by EBMUD from the Mokelumne River designed to attract Mokelumne River adult Chinook salmon into the Mokelumne River. The Lower Mokelumne River Partnership requested the closure of the DCC at that time in order to allow the pulse flows to have their intended effect of attracting Mokelumne-origin fall-run Chinook salmon to the Mokelumne River, and to avoid the rush of Sacramento River water coming through the DCC and overpowering those Mokelumne olfactory cues that would occur with an open DCC. The request was made in an attempt to minimize the straying of Mokelumne fish. Unfortunately the request was rejected by the USBR due, in part, to the short advance notice of the request.

In 2010, the process to request a closure of the DCC therefore began earlier, in April 2010, when the Lower Mokelumne River Partnership, including CDFW, USFWS and EBMUD, requested the USBR to close the DCC from October 3 through15, 2010. In response to this request, USBR implemented a short 2.5 day closure in October 2010.

In 2011, the Lower Mokelumne River Partnership requested the USBR to close the DCC in October 2011. In response to this request, the USBR implemented a 10 day

DCC closure in October 2011, which helped contribute to a much lower 2011 stray rate of under 20% for Mokelumne River origin fall-run Chinook salmon (Appendix A, Figure 4).

a. The 2012 Closure Study

Based on the significant reduction in straying that occurred between 2008 and 2011 (from over 90% straying in 2008 to under 20% straying in 2011), a group consisting of representatives from the CDFW, USFWS, and, EBMUD worked with USBR staff to develop the 2012 Closure Study described above. The study looked to be a promising initiative to analyze the effects of DCC closures on migratory cues and straying for adult Mokelumne River origin fall-run Chinook salmon. Unfortunately, due to the subsequent drought and the difficulty in meeting interior Delta water quality standards, the study was never completed.

However, as shown by the reduced stray rates resulting from DCC closures in 2010 and 2011, DCC operations have significant influence on the stray rates of Mokelumne-origin salmon.

The repeated efforts by the Lower Mokelumne River Partnership in requesting USBR to periodically close the DCC have resulted in some closures of the DCC in the key fall up-migration period, and those closures have been helpful. There is a need to continue these efforts to address this long-running fishery impact. Just as important, it is imperative that the problem not be made worse by opening the DCC *more* during the fall up-migration period. Based on the documentation described below, it appears that is precisely what is proposed.

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III. THE PROJECT WOULD INCREASE DCC FISHERY IMPACTS

A. The Project Would Increase DCC-Related Fishery Impacts on the Mokelumne River Fall Run Chinook Fishery

1. Petitioners Have Not Submitted an Operations Plan Explaining How the Project and the DCC Would be Operated

Petitioners have not yet presented an operations plan explaining how the SWP and CVP would be operated once the Project facilities are constructed. As a result, the public does not know exactly how the Project, including the DCC, will be operated once the Project is complete. However, based on documentation associated with the Project, it is apparent that at times the DCC would be open *more* in the critical fall up-migration period under Project conditions than it would be without the Project. This is a significant concern. If the DCC is open more under Project conditions during the October-November up-migration season for returning adult Mokelumne-origin fall-run Chinook salmon, the Project will increase impacts on that Mokelumne fishery. This impact to fishery and public trust resources must be addressed, as we propose below.

2. Petitioners Have Not Conducted an Analysis of the Impacts of the Project on the Mokelumne River Anadromous Fishery

Petitioners produced several environmental review documents for the Project, yet none of them assess the Project's potentially significant environmental impacts on the Mokelumne River anadromous fishery. As summarized briefly below, EBMUD submitted extensive comments on those documents.

Petitioners' 2013 Bay Delta Conservation Plan Draft Environmental Impact Report/Environmental Impact Statement (2013 EIR/EIS) did not address or analyze the potential impacts of the Project on the Mokelumne River fishery. To address this omission, EBMUD submitted a July 28, 2014 comment letter on the EIR/EIS. That letter pointed out the omission of analysis of Project impacts on the Mokelumne fishery, including potential impacts associated with DCC operations. In particular, that comment letter noted the long-recognized relationship between DCC operations and salmonid

migration, concluding that "[w]ithout specific DCC operating criteria and associated impact analysis, the conclusions regarding fisheries impacts are less than certain," and noting that "the document fails to identify that one of the leading factors driving straying of Mokelumne-origin Chinook salmon is the operation of the DCC." (EBMUD BDCP EIR Comment Letter (July 28, 2014), Attachment 2.) (EBMUD-176.)

Despite this explicit identification by EBMUD of Project impacts on the Mokelumne River fishery, the subsequent 2015 Bay Delta Conservation Plan/California WaterFix Partially Recirculated Draft EIR/Supplemental Draft EIS (2015 RDEIR/SDEIS) did not address the issues.

Accordingly, in its October 28, 2015 comment letter on the RDEIR/SDEIS, EBMUD again advised that the Project would impact the Mokelumne River fishery and noted the failure to consider the issue. In this comment letter, EBMUD focused on the potential for Project-related changes in DCC operations to cause significant impacts on Mokelumne River salmonids:

> In sum, it is well settled that operation of the DCC can impact Mokelumne River fisheries. Therefore, any new operating regime resulting from Alternative 4A needs to include a full evaluation of the DCC impacts on migrating Mokelumne-origin adult salmon, and a commitment to implement measures to reduce those impacts (i.e., reduce straying) to a level of insignificance in the RDEIR/SDEIS.

(EBMUD BDCP/WaterFix Comments, October 28, 2015 at p. 2.) (EBMUD-176.)

Although Petitioners acknowledged, for the first time, the potential for the Project to impact the Mokelumne fishery in the *Final* EIR/EIS, that analysis focused on steelhead and completely failed to address the potential impacts on the Mokelumne-origin fall-run Chinook salmon, including potentially significant impacts stemming from Project-caused increases in DCC openings during the fall salmonid migration period. With respect to steelhead, the analysis was also inadequate because it relied exclusively on modeling of potential changes in olfactory cues using a method known as DSM2-QUAL fingerprinting. As EBMUD noted in its comments on the Final EIR/EIS,

that analysis failed "to meet standards needed to identify Project impacts because the volume, timing, and pathway of water also play key roles in salmonid migratory route selection." EBMUD BDCP/WaterFix Final EIR/EIS Comments (January 30, 2017).

3. Petitioners' Documentation Demonstrates That the Project Would Cause the DCC to be Open for Longer Periods in the Fall

As explained above, DCC openings during fall migration increase straying of Mokelumne River salmonids into other river systems. Petitioners' own modeling demonstrates that the Project will exacerbate this negative impact on the Mokelumne River fishery by causing the DCC to be open more in October and November, the key months for fall salmonid migration.

Modeling completed for the July 2016 Biological Assessment for the California WaterFix (2016 BA) (SWRCB-104), shows that the Project would cause the DCC to be open more during the fall salmonid migration period. The 2016 BA provides insight on this impact using two different metrics: (i) the duration of a given DCC opening (i.e., once the DCC opens, the length of time it remains open); and (ii) the overall number of days per month during which the DCC is open (e.g., the number of days the DCC is open during the month of November).

a. The 2016 BA Shows The Project Will Cause Substantial Increases In The Duration Of Openings Of The DCC During The Month Of November (The Only Month For Which DCC Opening Duration Is Considered)

As stated in the 2016 BA's discussion comparing the No Action Alternative (NAA) to the Project Alternative (PA):

> Assessing the duration of DCC openings in each month for the NAA and PA and the potential effects on upstream-migrating adult salmonids is complicated by overlaps of closure periods across months (e.g., DCC opening in one month, followed by closure in the subsequent month). The month of November perhaps illustrates best how the duration of DCC opening could differ between NAA and PA. Openings commencing in November occurred at a similar frequency under NAA (n = 25 openings over the 82-year CalSim period) and PA (n = 22 openings). Openings tended

> to be longer under the PA (mean = 14.0 days, median = 8 days, mode = 20 days) than the NAA (mean = 8.6 days, median = 6 days, mode = 3 days). (2016 BA at 5-120 through 121.) (Emphasis added.)

In other words, across the 82-year modeling period, the Project caused DCC openings in November to be approximately 39 percent longer in duration, on average, than without the Project.

Equally important, across the same modeling period, the most common duration for November DCC openings increased significantly from a length of three days without the Project, to twenty days with the Project. Stated differently, a "typical" November DCC opening without the Project would last for three days, while a "typical" November DCC opening with the Project would last for twenty days. This stark difference is best illustrated by 2016 BA Figure 5.4-7, attached here as Appendix A, Figure 5. Such increased, lengthy openings of the DCC during the critical fall up-migration period would have a substantially negative impact on fishery and public trust resources. In particular, the extended openings of the DCC, and resulting influx of Sacramento River water, will mute the cues upon which the Mokelumne-origin fall-run Chinook salmon rely to migrate, thereby causing a substantial increase in straying of Mokelumne salmon to other Central Valley rivers.

b. The 2016 BA Shows The Project Will Substantially Increase The Total Number Of Days Per Month The DCC Will Be Open During The Fall Up-Migration Period

The 2016 BA modeling also indicates the Project would result in an overall increase in the total number of days during which the DCC is open in October and November (i.e. the total number of days across all DCC openings in October or November during the 82-year modeling period).

The 2016 BA modeling shows similar Project-caused increases in DCC openings during October, arguably the most important month for fall salmonid migration. The modeling shows that in October, the Project would cause increases in both the mean (8%) and median (7%) number of days the DCC would be open in October. (2016 BA

Appendix 5A, Table 5.A.6-31.) (Appendix A, Table 2). In addition, in November, also an important month for fall salmonid up-migration, this BA modeling indicates that the Project caused the DCC openings to increase a mean 26% and median 58%.

The 2016 BA concludes that a potential effect of the DCC being open more frequently and for longer durations under the Project would be delayed migration of adult salmonids moving upstream towards the Sacramento River. Mechanisms causing the delay include reduced migratory cues in the Sacramento River due to reduced flow and false cues in the Mokelumne River due to conveyance of Sacramento River water. Unfortunately, the 2016 BA failed to include any analysis related to impacts of the Project on adult Mokelumne River origin salmonids. Existing information previously provided on various occasions to the project proponents indicates that DCC operations significantly affect migratory cues within the Mokelumne River Delta forks, and that frequent and/or continuous openings lead to increased straying.

c. The NMFS Biological Opinion Also Shows Impacts Associated With Additional Openings

The NMFS June 2017 biological opinion for the Project (NMFS Project BiOp) (SWRCB-106) also provides evidence that the Project will result in increased and longer openings of the DCC. Although much of the NMFS Project BiOp analysis focused on residency times, predation risk, survival and probability of Sacramento fish entering the DCC, it also confirmed that during the fall, the DCC gates would be open more frequently under the Project Alternative operations. (See NMFS Project BiOp, page 658.) Although the NMFS Project BiOp does not analyze the resulting impacts of the increased DCC openings on Mokelumne-origin salmonids, the conclusion that the DCC gates would be open more frequently in the fall under the Project Alternative lends further credence to EBMUD's concern that the Project will have a substantial negative impact on up-migrating Mokelumne-origin fall-run Chinook salmon.

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IV. MITIGATING CONDITIONS

A. Conditions Should Be Imposed to Prevent the Project from Harming Mokelumne-Origin Salmonids

1. Mandatory Closures of the DCC in the Fall

To address the fishery and public trust impacts resulting from the Project causing the DCC to be open more and for longer periods in October and November, EBMUD requests the State Water Board include a water right condition in any approval of the Petitioners' requested change petition to require additional closures of the DCC as follows:

> The DCC closure plan (daily or based on tidal cycles) shall be modified to include the following closure periods during the months of October and November: The DCC shall be closed for 15 days per month during the months of October and November, with said closures to be coordinated, to the extent feasible, with October-November pulse flows from the Lower Mokelumne River.

V. CONCLUSION

The DCC negatively impacts the Mokelumne-origin fall-run Chinook salmon fishery by muting migratory cues and causing straying. If granted, Petitioners' requested change petition would enable the WaterFix project to be built and operated, thereby resulting in increased openings of the DCC during the critical up-migration period for the Mokelumne-origin fall-run Chinook salmon fishery. Such openings would unreasonably affect that fishery by causing even greater negative impacts. To avoid that fishery and public trust impact, EBMUD requests that, if the State Water Board

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grants the change petition, it impose a condition requiring closure of the DCC in the months of October and November as requested by EBMUD in its proposed condition.

Executed this 29th day of November 2017 in Oakland, California.

Jose D. Setka

APPENDIX A

List of Figures & Tables
Testimony of Jose D. Setka

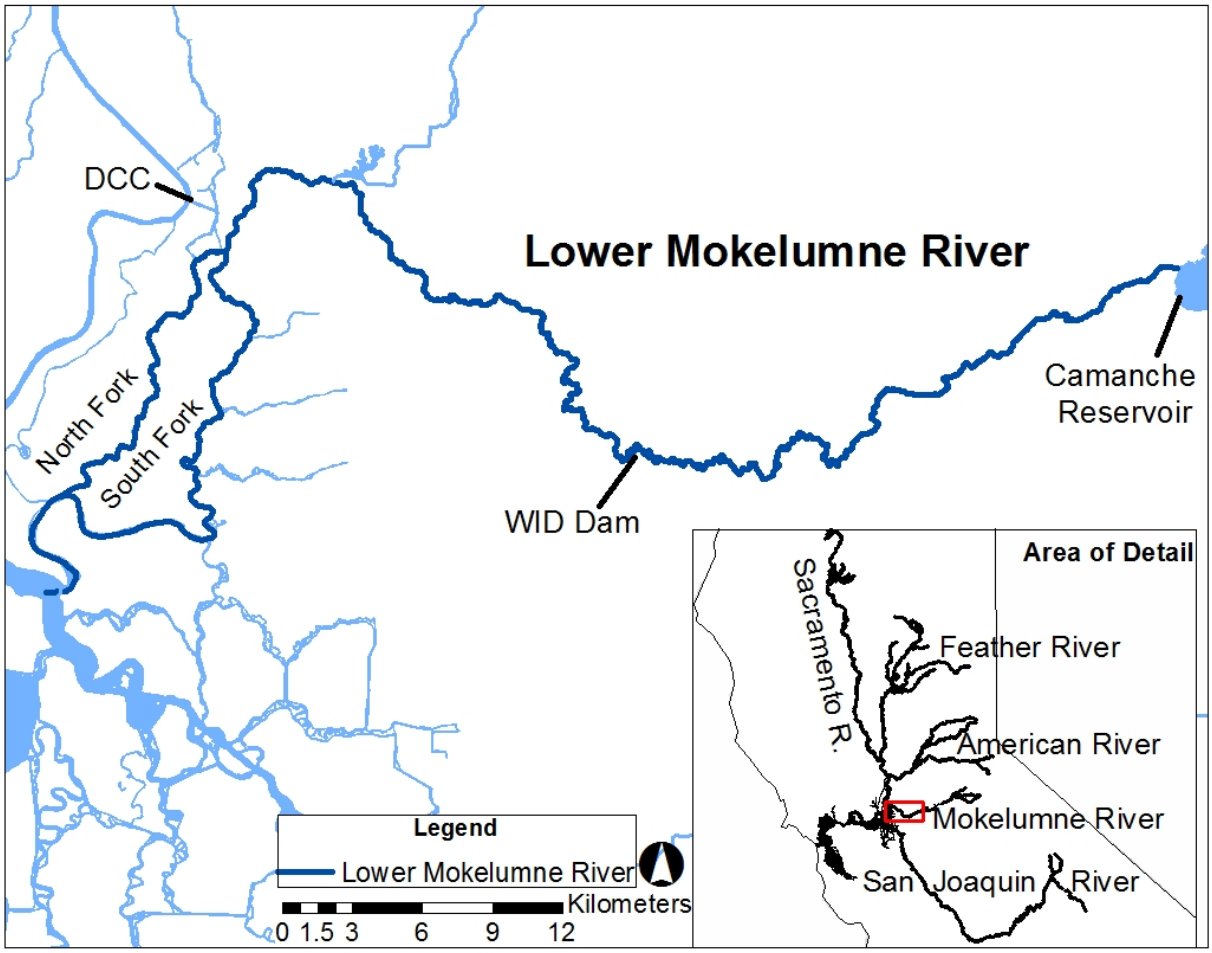
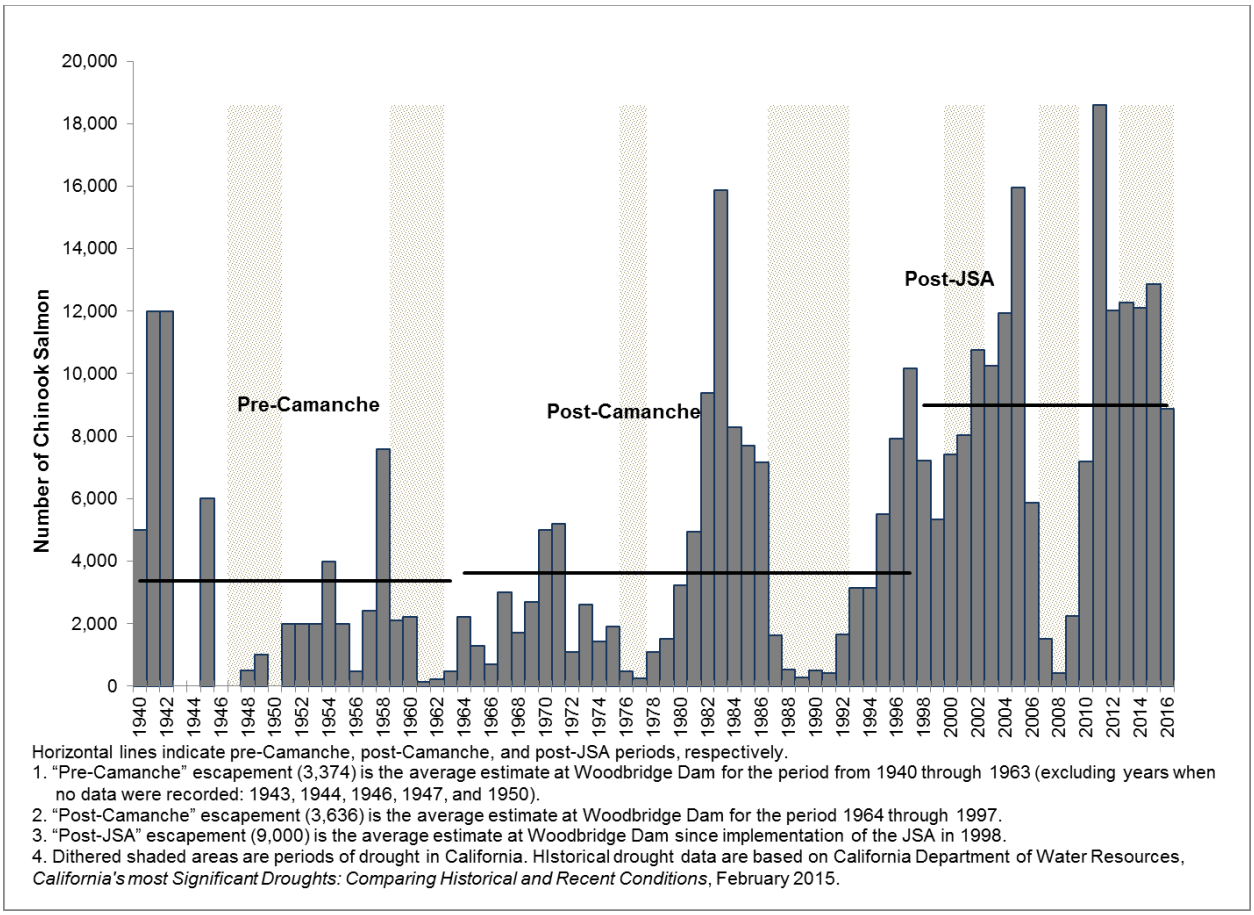


Figure 1. Map of Central Valley, California with detailed location of Lower Mokelumne River.



Horizontal lines indicate pre-Camanche, post-Camanche, and post-JSA periods, respectively.
1. "Pre-Camanche" escapement (3,374) is the average estimate at Woodbridge Dam for the period from 1940 through 1963 (excluding years when no data were recorded: 1943, 1944, 1946, 1947, and 1950).
2. "Post-Camanche" escapement (3,636) is the average estimate at Woodbridge Dam for the period 1964 through 1997.
3. "Post-JSA" escapement (9,000) is the average estimate at Woodbridge Dam since implementation of the JSA in 1998.
4. Dithered shaded areas are periods of drought in California. HIstorical drought data are based on California Department of Water Resources, *California's most Significant Droughts: Comparing Historical and Recent Conditions*, February 2015.

Figure 2. Mokelumne River Fall-run Chinook salmon annual escapement 1940 to 2016 including annual averages for pre-Camanche, post-Camanche and post- Joint Settlement Agreement (JSA) periods.

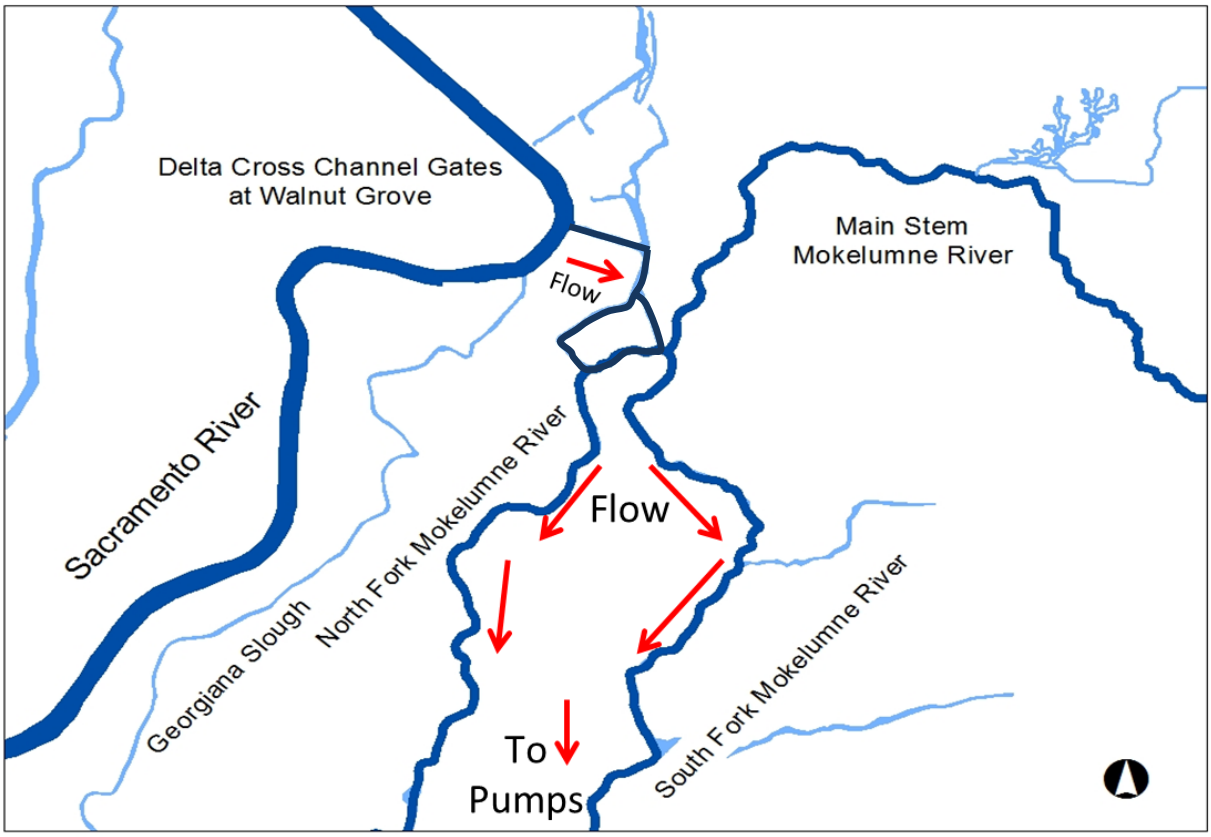


Figure 3. Map of Delta Cross Channel and Mokelumne River vicinity including depiction of outflow directions.

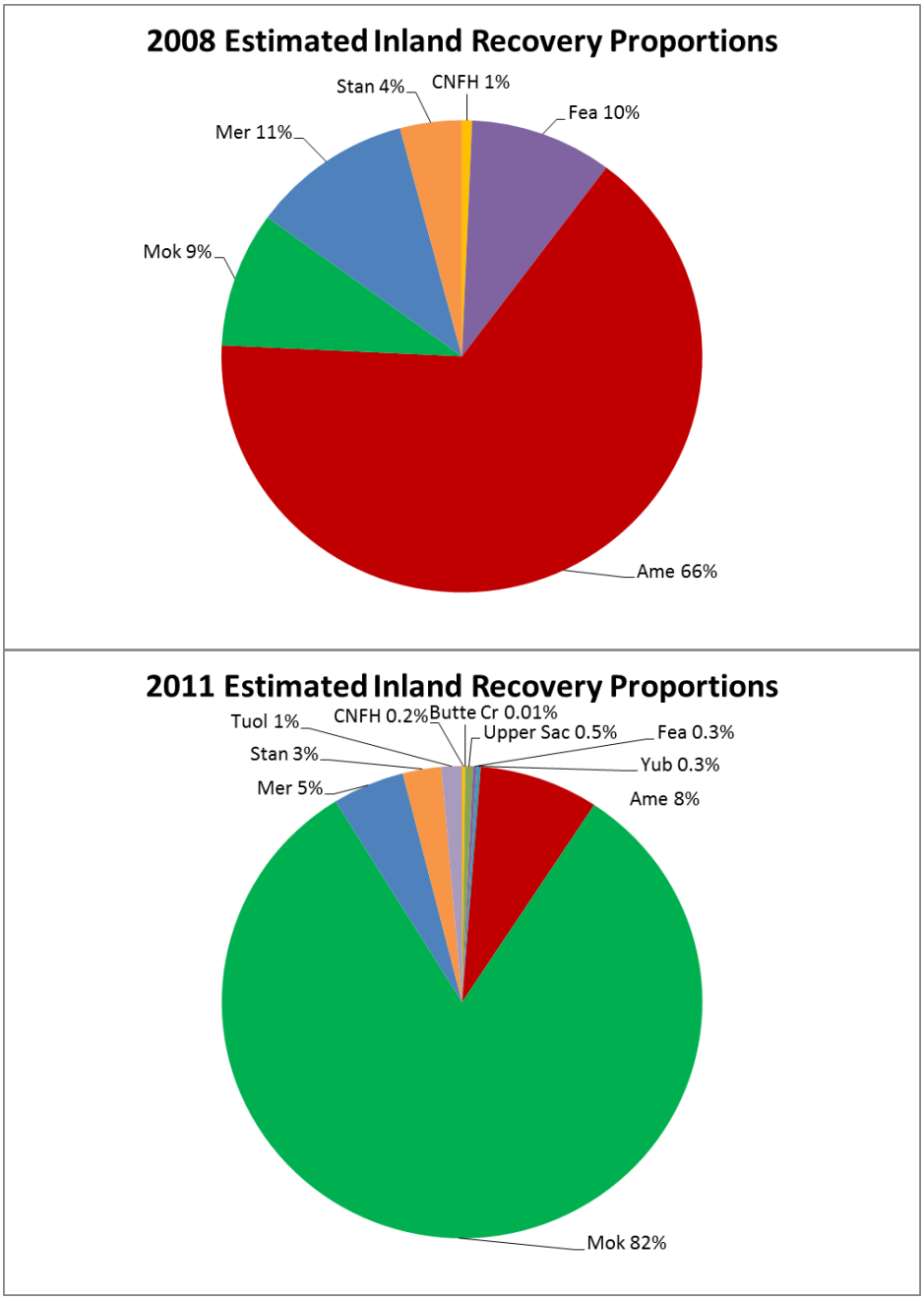


Figure 4. Estimated inland recovery proportions of Mokelumne River origin Chinook salmon 2008 and 2011. (Prepared from Regional Mark Processing Center data 2017)

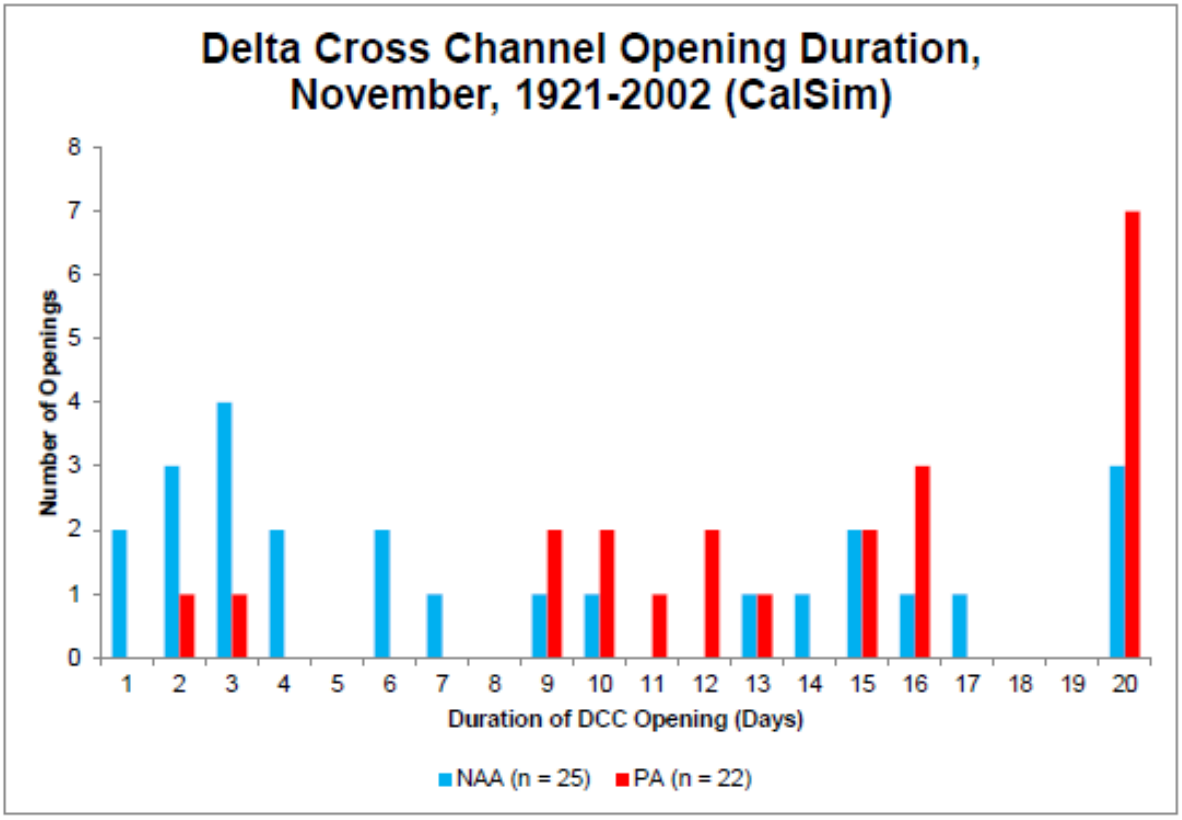


Figure 5.4-7. Duration of Delta Cross Channel Openings that Began in November, from CalSim Modeling of 1921-2002.

Figure 5. Difference in number and duration of Delta Cross Channel openings between NAA and PA from California Water Fix Biological Assessment July 2016. (Page 5-122)

Table 1. Operations of the Delta Cross Channel under State Water Board Decision 1641 and the 2009 NMFS BIOP. (Delta Cross Channel Temporary Closure Multi-Year Study Final EA, USBR 2012)

D-1641

Date	Action
November 1-January 30	DCC gates may be closed for up to a total of 45 days.

NMFS 2009 BIOP

Date	VI. Action Triggers	Action Responses
October 1-November 30	Water quality criteria per D-1641 are met and either the the KLCI or SCI is greater than 5 fish per day	Within 24 hours, close the DCC gates and keep closed until the catch index is less than 3 fish per day at both the Knights Landing and Sacramento monitoring sites.
	Water quality criteria per D-1641 are met, niether Knights Landing Catch Index or the Sacramento Catch Index are greater than 3 fish per day but less than or equal to 5 fish per day	Within 24 hours of trigger, DCC gates are closed. Gates will remain closed for 3 days
	The KLCI or SCI triggers are met but water quality critera are not met per D-1641 crtieria	DOSS reviews monitoring data and makes recommendation to NMFS and WOMT per procedutes in Action IV.5

Table 2. Excerpt from California Water Fix Biological Assessment depicting increased probability of gates being opened in October and November. (Appendix 5A CalSim II Modeling and Results)

Table 5.A.6-31. Delta Cross Channel, Average Number of Days Gates Open

Statistic	October				November			
	NAA	PA	Diff.	Perc. Diff.	NAA	PA	Diff.	Perc. Diff.
Probability of Exceedance[a]								
10%	31	31	0	0%	20	20	0	0%
20%	31	31	0	0%	20	20	0	0%
30%	31	31	0	0%	17	20	3	20%
40%	31	31	0	0%	14	16	2	18%
50%	29	31	2	7%	10	15	6	58%
60%	27	30	3	11%	4	11	7	185%
70%	24	28	4	17%	2	9	7	350%
80%	18	26	8	43%	0	3	3	-
90%	13	18	5	36%	0	0	0	-
Long Term Full Simulation Period[b]	25	27	2	8%	10	12	3	26%

a. Exceedance probability is defined as the probability a given value will be exceeded in any one year.
b. Based on the 82-year simulation period.

APPENDIX B

DFW May 2, 2012 Letter
Testimony of Jose D. Setka

State of California - Natural Resources Agency
DEPARTMENT OF FISH AND GAME
1416 9th Street
Sacramento, CA 95814
http://www.dfg.ca.gov

LATE COMMENT

May 2, 2012

Charles R. Hoppin, Chair
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Subject: Comments on the Supplemental Notice of Preparation and Notice of Scoping Meeting for Environmental Documentation for the Update and Implementation of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary: Comprehensive Review

Dear Mr. Hoppin:

The Department of Fish and Game (Department) appreciates the opportunity to provide comments on the above referenced Supplemental Notice of Preparation (Supplemental NOP). As described in the Supplemental NOP, the State Water Resources Control Board (State Water Board) is currently preparing a Substitute Environmental Document (SED) for the review of the southern Delta salinity and San Joaquin River flow objectives included in the 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan). The State Water Board is now requesting comments regarding the scope and content of environmental information that should be included in a separate SED relating to the comprehensive review of the other components in the Bay-Delta Plan, which includes the current water quality objectives, potential establishment of new objectives, modifications to the program of implementation for those objectives, and potential changes to the monitoring and special studies program.

We agree with the State Water Board's staff recommendation in the 2009 Staff Report for the Periodic Review of the 2006 Bay-Delta Plan (2009 Staff Report) that further review of certain key issues in the Bay-Delta Plan is necessary and provide the following information and comments for your consideration:

Delta Outflow, Export/Inflow, and Old and Middle River Flow Objectives

Water flow through the Delta is one of the primary drivers of ecosystem function. The timing, magnitude, quality of flows, and way in which water is diverted all influence habitat features such as temperature, turbidity, transport, nutrient loadings, pollutant dispersal, and other factors. Changes in Delta flows resulting from upstream diversions and operations of the State Water Project (SWP) and Central Valley Project (CVP) upstream of and in the Delta have resulted in modification of the hydrologic and physical habitat of the Delta system, which in turn has altered the Delta ecosystem

(Healey et al. 2008)[1]. Fish population declines coupled with these hydrologic and physical changes suggest that current Delta water flows for environmental resources are not adequate to maintain, recover, or restore the functions and processes that support native Delta fish. Salmon in the Central Valley are also in decline. Two of the four races of Chinook salmon are listed under the federal Endangered Species Act (FESA) and California Endangered Species Act (CESA) and fall-run Chinook salmon, a species of concern, is at historic low abundance. Delta smelt is listed under both FESA and CESA and longfin smelt is listed under the CESA reflecting their precipitous declines in abundance.

The Department's 2010 report "Quantifiable Biological Objectives and Flow Criteria for Aquatic and Terrestrial Species of Concern Dependent on the Delta" (2010 report)[2] provides biological goals for terrestrial and aquatic species that are dependent on the Delta, including goals for recovery and self-sustaining populations of certain at-risk species; protection and restoration of natural communities; halting species population declines; and establishing water flows through the Delta that will benefit particular species, community, or ecosystem functions. With these goals in mind, the report includes biological objectives for 27 terrestrial and 20 aquatic species, and flow criteria (timing, magnitude, and quality) for eight identified species of concern in the Delta. We recommend the State Water Board evaluate and implement water quality objectives for Delta Outflow, the Export/Import Ratio, and reverse flows in the Old and Middle Rivers that consider the biological goals and objectives in the 2010 report.

The flow criteria contained in the 2010 report includes recommendations for Delta Outflow and Old and Middle Rivers reverse flows with the suggestion that before any specific flow criteria are implemented, consideration should be given to new research and monitoring not available when the report was completed. This suggestion is in-line with the management goals in the report – that an adaptive management process be established to evaluate Delta environmental conditions, periodically review the scientific underpinnings of the biological objectives and flow criteria to ensure that they remain relevant and scientifically supportable, and to change the objectives and criteria when warranted. For example, we believe ample evidence exists that improved Delta outflows are critical to the survival of important Delta species. For many species that live in, or move through the Delta, abundance is related to the timing and quantity of Delta outflow (or the placement of X2). Although longfin smelt production has been negatively impacted by recent changes in the estuarine food web, there continues to be a strong association between longfin smelt production and winter-spring outflow levels and/or X2 position. In addition, substantial evidence exists suggesting that summer-fall X2 position strongly influences the amount and quality of suitable habitat for juvenile delta smelt and subsequent adult abundance. The initial findings of the 2011 Interagency Ecological Program (IEP) fall habitat studies appear to confirm the importance of summer-fall flows in delta smelt production. We recommend the State Water Board establish an adaptive management process to review and modify flow

[1] Healey, M.C., M.D. Dettinger, and R.B. Norgaard, eds. 2008. The State of Bay-Delta Science, 2008. Sacramento, CA: CALFED Science Program. 174 pp.

[2] http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=25987

criteria in the Delta that allows the use of the latest data and information from research and monitoring to respond to the needs of Delta species.

Delta Cross Channel Gate Closure Objectives

The current objective states that the Delta Cross Channel (DCC) gate shall be closed for a total of up to 45 days for the November through January period. The timing of this closure is important for the protection of juvenile salmon by helping to prevent straying into the interior and then southern Delta towards the SWP and CVP diversion pumps.

This is half of the equation. During October, adult fall-run Chinook salmon are moving up through the Delta towards their natal spawning grounds and the open DCC gates can cause straying of adult salmon as Sacramento River water is sent into the Mokelumne and San Joaquin Rivers. Recent studies in the Mokelumne River have shown that a combination of pulse flows along with the closure of the DCC gates in October can not only increase the number of salmon returns, it can also cut down on the stray rates of salmon from the Mokelumne going into other rivers, in particular the American River.

Escapement Year	Number	Stray rate to American R. (estimated)	Pulse Flow	DCC Closure
2008	412	75%	No	No
2009	2,232	54%	Yes	No
2010	7,196	25%	Yes	Yes (2 day)
*2011	18,462	7%	Yes	Yes (10 day)

Lower Mokelumne Partnership Experimental Action Plan-Delta Cross Channel Closure May 2011 *Update 2011 numbers by EBMUD.

We recommend that the State Water Board evaluate potential changes to the DCC Gate Closure Objectives that would close the gate during all or a portion of October, which would strengthen migration cues for migratory fish and benefit both Sacramento and Mokelumne origin fall-run Chinook salmon.

Suisun Marsh Objectives

Suisun Marsh is the largest contiguous brackish water marsh remaining on the west coast of North America and is a critical part of the San Francisco Bay/Sacramento–San Joaquin River Delta (Bay-Delta) estuary ecosystem, encompassing more than 10% of California's remaining natural wetlands. The Suisun Marsh Habitat Management, Preservation, and Restoration Plan (Marsh Plan) [3] is focused on protecting and enhancing Suisun Marsh's contributions to the Pacific Flyway and endangered fish and

[3] http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=781

wildlife species habitats, maintaining and improving strategic exterior levees, and restoring tidal marsh and other habitats. We recommend the State Water Board evaluate water quality objectives for the Bay-Delta Plan that contributes to the implementation of the Marsh Plan objectives and purposes, one of which concerns protecting and improving water quality for beneficial uses in Suisun Marsh, including estuarine, spawning, and migrating habitat uses for fish species as well as recreational uses and associated wildlife habitat. Delta outflow, State and federal water export operations, urban and agricultural run-off, and upstream diversions all affect water quality in Suisun Marsh. Improvement of water quality and management practices will benefit the ecological processes for all habitats, including managed and tidal wetlands.

Floodplain Habitat Flow Objectives

Studies have shown that floodplains provide important ecosystem support functions, such as providing rearing habitat for juvenile Chinook salmon, spawning and rearing habitat for splittail, and increased food production at lower trophic levels. We recommend that the State Water Board evaluate flow objectives based on important metrics, such as the frequency, duration, timing, seasonality, and magnitude of inundation that influence these, and other, ecological benefits of floodplains.

One thing to note here is the presence of mercury throughout much of the Delta and its tributaries. In recent years, the production, export, and bioaccumulation of methylmercury have become a focal point with the State Water Board's regulatory efforts (e.g., total maximum daily loads (TMDL)). In the 2009 Staff Report, the discussion on flow objectives to support floodplain habitat and other fish and wildlife beneficial uses identified that methylmercury contamination in fish is associated with floodplain areas and wetlands in the Bay-Delta system and that restoration activities could exacerbate the existing mercury issue. Although methylmercury production is often associated with floodplain areas and seasonal wetlands, restoration of these habitat types is critical to the conservation and protection of the Bay-Delta ecosystem. Wetlands restoration enhances and maintains numerous beneficial uses of water. We recognize the issues of methylmercury production and bioaccumulation and believe it prudent to be cognizant of these issues when restoring floodplain and wetland habitat.

The Department's Ecosystem Restoration Program (ERP) has funded several studies that inform restoration activities on minimizing methylation. ERP is funding several grants that will further contribute to the knowledge base. The Department makes available the results of these studies as they are completed. Creation of new wetlands and new restoration activities in the Delta will need to comply with the Methylmercury TMDL for the Delta. Through this TMDL, additional studies will be conducted to inform restoration design and improve management practices of multiple wetland types to minimize methylmercury production and export. We recommend that the Bay-Delta Plan incorporate an approach to wetlands restoration consistent with the strategic goals and objectives in the Department's DRAFT Ecosystem Restoration Program Conservation Strategy for Restoration of the Sacramento-San Joaquin Delta Ecological

Management Zone and the Sacramento and San Joaquin Valley Regions[4]. This strategy includes recommendations for a variety of floodplain and wetland habitats in the Delta and Delta watersheds that benefit species and ecosystem functions.

Changes to the Monitoring and Special Studies Program

Given the fundamental complexity and dynamic nature of the estuary, there is an ongoing need for well-conceived, strongly supported, and collaboratively conducted scientific monitoring and research. There are many key scientific uncertainties that hamper efficient management of the estuary, including, but not limited to, the role of nutrient stoichiometry in fish species productivity, the mechanisms underlying the flow/longfin smelt abundance association, the mechanisms underlying the associations between sturgeon reproduction and river flow/outflow, and the role of tidal and floodplain habitat in estuarine productivity. The IEP has a demonstrated tradition of providing high quality ecological information and scientific leadership for use in management of the San Francisco Estuary, including the Delta. This multi-agency collaboration will continue to be important for addressing these scientific uncertainties and evaluating multiple stressors that influence Delta issues (e.g., the pelagic organism decline). A high priority of this coordination must be the methodical integration of effectiveness monitoring, long term trends monitoring, compliance monitoring, and the proactive identification of emerging trends. The need to match adaptive management model approaches, provide transparent and timely data sharing, engage common stakeholders efficiently, and coordinate study proposals and study implementation will be essential in maintaining the effectiveness of long- and short-term studies. We look forward to continuing and expanding our support in close coordination with the other IEP agencies and recommend the State Water Board stay engaged and help lead this process.

The scope of studies, such as the Spring Kodiak Trawl indices, longfin smelt surveys, crustacean and lower trophic level surveys (e.g. zooplankton), should be increased to provide complete information in order to fully understand the effects and efficacy of outflow, export and inflow objectives. Enhancing the seasonal or geographic scope of these studies will lead to a better understanding of the population dynamics of target species. For example, the Smelt Larva Survey could be extended to better document the recruitment of delta smelt or other fish species of interest. Expanding the geographic scope or modifying the sampling procedures could allow for the population estimates (or indices) that are needed to assess the performance of actions to meet objectives. We recommend expanding surveys into Cache Slough and the Sacramento Deep Water Ship Channel, which will provide baseline data for these regions prior to planned habitat restoration and better information on the distribution and habitat of delta smelt. The State Water Board should also consider focused extensions of the Tow Net Survey, Fall Midwater Trawl Survey, and Spring Kodiak

[4] http://www.dfg.ca.gov/ERP/reports_docs.asp

Trawl Survey in order to understand the health, growth, and fecundity of delta smelt, longfin smelt, and other fishes. There is also a particular need for the development of effective life cycle models for key fish species.

The State Water Board should consider including fish surveys beyond the demersal zone in San Francisco bay and also resuming several key studies that are currently suspended: (1) The shoreline residential fish survey, which develops data on abundance trends and distribution of many shoreline fishes — including predatory largemouth bass; (2) catfish surveys to understand the role of these predators on and competitors with native species; and (3) juvenile sturgeon surveys which are necessary for proper management and for restoration planning.

We recommend that shallow-water habitats associated with floodplains be sampled more thoroughly to provide a suitable baseline. Information on fishes in shallow-water habitats has been periodically gathered by several special studies but very limited sampling is on-going. Current beach seine sampling provides reasonable coverage in the lower Sacramento and San Joaquin rivers and some of the Delta, but sampling is sparse in the western Delta and absent in Suisun Bay. Sampling is currently relatively intensive within Liberty Island, but this effort is not planned to be long-term. We recommend that some modest level of effort be maintained.

It will also be important to ensure that monitoring studies address, and can gather data in a timely manner to address, whether restored habitats and flood plain objectives provide habitat and or nutrition for target species, and (if so) whether or not habitat and nutritional effects on the species compensate (completely mitigate) for negative effects. Similarly, rapid and transparent reporting — as practiced by IEP — must be implemented in any new or proposed long-term fish entrainment monitoring programs (e.g. fish salvage facilities) or regional fish protective actions. To the extent feasible, prior to any changes to objectives, updated baseline studies with any changed study regimes should be completed, thereby ensuring adequate understanding of changes under new objectives.

Additionally, we recommend that the State Water Board take an active role in the coordination of scientific endeavors and management initiatives that — while outside the immediate boundaries of the Delta — contribute to the Delta's health and management. This includes immediate impact drivers (e.g., contaminants discharged upstream of the Delta) as well as organizational factors (e.g., numeric modeling of ecological processes that span jurisdictional boundaries).

Coordination with Federal, State and Other Ecosystem Planning and Implementation Programs and Efforts

As the State Water Board realizes, there are many different efforts underway in the Bay-Delta, and its watershed. Many of these efforts are consistently producing new information, synthesizing on-going studies into new paradigms, and making progress with on-the-ground activities. In updating the Bay-Delta Plan, the State Water Board

will need flexibility to work with multiple groups in order to capture the best science for the basis of the update and must also consider multiple stakeholder concerns when balancing the beneficial uses of the state's water. We suggest that State Water Board review the most significant on-going efforts and develop a strategy to incorporate recent accomplishments and new understandings. For example, on the San Joaquin River and its tributaries, the ERP and Anadromous Fish Restoration Program have successfully funded others and directly implemented multiple floodplain restoration projects. The Department of Water Resources (DWR) is also funding projects through the Flood Plain Corridors Program, and the US Fish and Wildlife Service has made consistent progress on their wildlife refuge lands that enhance floodplains.

As a related issue, the State Water Board should examine the science, both worldwide and that conducted within the Delta system, that addresses the importance of flows in riparian ecosystems. In particular, it is critical to incorporate current understandings of how inundated flood plains facilitate the interchange of ecosystem services between the river, adjoining wetlands, riparian forests and the contiguous uplands. The Department is aware of the effort the State Water Board has already taken to incorporate a strong science framework into this process and supports the continued reliance on the scientific information developed and/or submitted as part this process to date.

The Supplemental NOP states that information produced as part of the Bay Delta Conservation Plan (BDCP) may also be considered. In addition to the BDCP, there are many other on-going local, state and federal programs such as: Natural Community Conservation Plans, San Joaquin River Restoration Program, Central Valley Project Improvement Act, Delta Stewardship Plan, Central Valley Flood Protection Plan, California Climate Action Team and Climate Action Initiative, and various Integrated Regional Water Management Plans whose coordination/integration should be described in the Bay-Delta Plan.

Program of Implementation and Mitigation Measures

The Delta is a complex, dynamic ecosystem in which multiple processes and stressors are linked to, and interact with, one another. As the State Water Board re-examines the 2006 Bay-Delta Plan and develops updated objectives and implementation strategies, an attempt needs to be made to mitigate for indirect outcomes that fall outside the goals and objectives set forth. The National Research Council's (NRC) report "Sustainable Water and Environmental Management in the California Bay-Delta" (NRC 2012)[5] gives great guidance on how to view the multiple stressors of this system and should be reviewed by the State Water Board. We recommend that the State Water Board focus attention on the potential interactions of various stressors as they develop objectives in order to more effectively mitigate for indirect outcomes of any

[5] NRC. 2012. Sustainable Water and Environmental Management in the California Bay-Delta. Available at: http://www.nap.edu/catalog.php?record_id=13394#toc

proposed implementation strategies of the Bay-Delta Plan. For example, the implementation of water quality objectives may require modifications to SWP and CVP operations, which could affect biological resources associated with the water bodies south of the Delta that store, convey, and receive SWP and CVP water.

Adaptive Management

We recommend that the State Water Board develop a clear and concise definition of adaptive management that will be used throughout the Implementation and Monitoring and Special Studies Programs. The recent report by the NRC (NRC 2011)[6] on adaptive management and the BDCP has a very pertinent discussion of this issue. Adaptive management involves the development of hypotheses as the conceptual basis and rationale to support implementation of management actions, followed by monitoring and assessment of outcomes to determine whether the project goals and objectives are being achieved. A rigorous assessment of outcomes in an adaptive management process serves as a test of the established hypotheses and informs potential future changes in management actions. The term "adaptive management" has also been used to describe less rigorous processes that allow flexibility in the implementation of management actions (e.g., the releases of instream flows to accomplish real-time oriented objectives). Adaptive management should not suggest that standards are flexible, but should provide a systematic process for determining whether or not defined and measurable biological goals were met by the management actions (see Poff et al. 2003[7] for a good discussion).

Climate Change

As pointed out by the NRC, the changes to baseline climatic conditions will be one of the most challenging issues facing resources managers as we seek to rehabilitate the Delta ecosystem (NRC 2012). These changes will most likely alter the physical and ecological structure of the Delta, while exacerbating the difficulties in dealing with overall water issues in California. As baseline climatic and physical conditions in the Delta change, habitat and ecosystem services are likely to change, affecting the species that rely on them. The State Water Board should undertake as part of this update of the Bay-Delta Plan, and in coordination with the Department and DWR, a review of the current climate change science that relates to the Delta system. In particular, we believe that a high level of uncertainty exists regarding our (State Water Board and the Department's) ability to propose changes in the Bay-Delta Plan objectives that will address both current and future needs without a much better focus on the interactions of ecological systems during changing baseline conditions. To help

[6] NRC. 2011. A Review of the Use of Science and Adaptive Management in California's Draft Bay Delta Conservation Plan. Available at: http://www.nap.edu/catalog.php?record_id=13148

[7] Poff, N.L. et al. 2003. River flows and water wars: emerging science for environmental decision making. Front. Ecol. Environ. 6, 298–306

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address this uncertainty, the Bay-Delta Plan should be evaluated regularly for current and future success in meeting species and community needs.

In conclusion, the Department is committed to providing the State Water Board with additional data and information throughout its comprehensive review and update of the 2006 Bay-Delta Plan. We suggest that State Water Board review the most significant on-going efforts underway in the Bay-Delta and develop a strategy to incorporate these recent accomplishments and new understandings of this complex system. Should you have any questions or require clarification regarding our comments, please contact Glenda Marsh, Environmental Program Manager, at (916) 445-1739.

Sincerely,

for

Scott Cantrell
Water Branch Chief

ec: Kevin Hunting, DFG
Sandra Morey, DFG
Carl Wilcox, DFG
Jeff Single, DFG
Stafford Lehr, DFG
Thomas Gibson, DFG
Glenda Marsh, DFG

APPENDIX C

Lower Mokelumne River Partnership Letter
(April 20, 2010)
Testimony of Jose D. Setka

EBMUD-155

The Lower Mokelumne River Partnership

Partnership Steering Committee:

California Department of Fish & Game

Kent Smith
Acting Regional Manager
1701 Nimbus Rd., Suite A
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East Bay Municipal Utility District

Alexander R. Coate
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375 Eleventh St., M.S. 901
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To Protect and Enhance the Lower Mokelumne River Ecosystem

April 20, 2010

Mr. Ronald Milligan
Operations Manager
Bureau of Reclamation
Central Valley Operations Office
3310 El Camino Avenue, Suite 300
Sacramento, CA 95281

Dear Mr. Milligan:

The California Department of Fish and Game (CDFG), the US Fish and Wildlife Service (USFWS) and East Bay Municipal Utility District (EBMUD) jointly oversee the management of the Mokelumne River fishery. With the concurrence of CDFG and USFWS, EBMUD is planning an adaptive management action to store water in Camanche Reservoir for an attraction flow in October 2010 to draw Chinook salmon into the Mokelumne River. The National Marine Fisheries Service also concurs with this adaptive management action. It is anticipated that the attraction flow would occur in the first half of October, contingent with Chinook salmon staging in the Bay and Delta. One independent, non-Mokelumne factor which is believed to increase straying is the operation of the Delta Cross Channel (DCC) during the up-migration season. When the DCC is open, the Mokelumne River becomes the conveyance corridor for Sacramento River water serving the export pumps in the south Delta.

To maximize the effectiveness of the Mokelumne River attraction flow, CDFG, USFWS and EBMUD jointly request that the DCC remain in the closed position during the timeframe of October 3-15. This action will help minimize straying of Mokelumne salmon to the American River and other river systems.

If you have any questions or concerns regarding this correspondence, please contact Robert Vincik of CDFG at rvicik@cdf.ca.gov, Donald Ratcliff of USFWS at donald_ratcliff@usfws.gov or Joe Miyamoto of EBMUD at jmiyamoto@ebmud.com.

Sincerely,

Kent Smith

Alexander R. Coate

Kathy Wood