

Sites CDFW Approach Strategy Session Notes – April 22, 2020
Action Items

Item #	Action Item	Person Responsible	Due Date	Status	Notes
Upper Sacramento River					
1	What are the diversion criteria for Hamilton City and Red Bluff pre-ROC on LTO? <ul style="list-style-type: none"> • What are the criteria applicable to Sites? 	Lecky	5/15/20		
	What are Shasta operations under ROC on LTO? <ul style="list-style-type: none"> • Temp, refuge... • How would that/those effect Sites diversion ability 	Tull	5/15/20		
2	Did ROC on LTO change diversion requirements or CVP operation criteria at Red Bluff and Hamilton City?- <ul style="list-style-type: none"> • If so how and what are the changes? • If not what are the current requirements? 	Lecky	5/15/20		
3	Does the proposed VA criteria/actions above the Feather River confluence affect the current Hamilton City and Red Bluff criteria?	Tull	5/15/20		
4	How would adoption of the VA actions affect Sites currently proposed scenarios?	Tull/Lecky	5/15/20		
	What are existing criteria for Wilkins and how would varying flows and flow timing by sites effect that?	Lecky	5/15/20		

	<ul style="list-style-type: none"> • 8k all time • 8k April May/5k all other 				
5	<p>How would Sutter Bypass be addressed?</p> <ul style="list-style-type: none"> • Volume • Timing • Duration • Different notching scenarios • What are the notching goals? • What are the functions that are being protected and proposed to be added? 	Tull	5/15/20		
	<p>How would other Sutter projects like Tisdale be addressed?</p> <ul style="list-style-type: none"> • Volume • Timing • Duration • Different notching scenarios <p>What are the notching goals?</p>	Fitzer	5/15/20		
Fremont Weir					
5	What is the established purpose and goals for the project?	Fitzer/Lecky	5/15/20		
6	Would Sites prevent the project from meeting the purpose and goal of the Fremont Weir project?	Fitzer	5/15/20		
7	<p>Would Sites change the purpose and goal of the Fremont Weir project?</p> <ul style="list-style-type: none"> • If so how would we effect it • What would be the effect of that change <ul style="list-style-type: none"> ○ Volume ○ Timing ○ Duration 	Fitzer/Tull	5/15/20		Look at WISP appeal

	<ul style="list-style-type: none"> ○ Fish growth and/or outmigration ○ Wetted acres ○ 				
8	<p>What are the existing BiOP and ITP conditions for the weir?</p> <ul style="list-style-type: none"> ● How do we effect those? 	Lecky	5/15/20		
Delta					
8	How does the ITP NDOI effect the current Sites criteria?	Tull	5/15/20		
9	<p>What is in the ITP for Freeport and NDOI?</p> <ul style="list-style-type: none"> ● Are we different from that? ● How we are different than those components as described in the ITP? <p>Using all existing criteria, how would Sites effect potential projects that are in the pipeline such as DC?</p> <ul style="list-style-type: none"> ● Freeport flow changes ● Water or diversion capacity changes from planned or existing projects. 	Lecky/Tull	5/15/20		

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Upper Sacramento River					
1	What are the diversion criteria for Hamilton City and Red Bluff pre-ROC on LTO? <ul style="list-style-type: none"> What are the criteria applicable to Sites? 	Lecky	5/15/20	TCCA – Biological opinion issued by NMFS for construction and operation of pumping plant and fish screen was issued in 2008.	None of the opinions reviewed establish criteria for when the diversions may occur. The only remaining operating criterion is monitoring to ensure performance consistent with the screen performance standards to which they were designed.
				GCID – NMFS has consulted several times on the construction, operation, and investigations into performance of the fish screen. The most recent biological opinion was issues in 2007.	None of the opinions reviewed establish criteria for when the diversions may occur. The only remaining operating criterion is monitoring to ensure performance consistent with the screen performance standards to which they were designed.
	What are Shasta operations under ROC on LTO? <ul style="list-style-type: none"> Temp, refuge... How would that/those effect Sites diversion ability 	Tull	5/15/20	Provided draft memo on 5/4/20 and currently responding to comments.	<ul style="list-style-type: none"> Preliminary post-processing shows reduced capability for Shasta exchange and reduced temperature benefits No anticipated changes to refuge deliveries No anticipated changes to diversion ability
2	Did ROC on LTO change diversion requirements or CVP operation criteria at Red Bluff and Hamilton City?- <ul style="list-style-type: none"> If so how and what are the changes? If not what are the current requirements? 	Lecky	5/15/20	These diversions are discussed in NMFS 2009 and 2019 opinions on the Long-term operations of the CVP.	Neither opinion/incidental take statement included restrictions on diversion. There is a voluntary measure discussed in the 2019 biological opinion under which TCAA and GCID will coordinate diversions for fall rice decomposition flood up to avoid any sudden decrements in flow that might affect habitat. This likely would have little effect on Sites use of these facilities since Sites will divert only when there is available capacity in these facilities
3	Does the proposed VA criteria/actions above the Feather River confluence affect the current Hamilton City and Red Bluff criteria?	Tull	5/15/20	We are refining the previous flow/habitat analysis for the Sacramento River From Keswick to Knights Landing.	Anticipate greater impacts between Hamilton city and Wilkins Slough due more frequent and larger diversions at GCID due to elimination of the Delevan Intake.
4	How would adoption of the VA actions affect Sites currently proposed scenarios?	Tull/Lecky	5/15/20	Currently evaluating Tisdale Weir protections with and without the proposed notch.	Preliminary results show protection of 5,000 cfs spill at Tisdale weir causes significant reduction in Sites diversions capability upstream
	What are existing criteria for Wilkins and how would varying flows and flow timing by sites effect that? <ul style="list-style-type: none"> 8k all time 8k April May/5k all other 	Lecky	5/15/20	The existing criterion at Wilkinson Slough is 5,000 CFS. It is an archaic navigation standard, which remains in place because diversion pumping plants were designed to that river flow. The 2019 CVP biological assessment and opinion recognize that in critical dry years the standard may not be met to conserve of the Shasta cold water pool. The USBR has included a commitment to work with the diverters to ensure their pumps and not harmed by violation of the standard.	Sites alternative in the 2017 EIR/S were designed to meet the 5000 cfs standard. Ensuring more flow was in the river to meet an 8000 cfs flow requirement would limit opportunities to divert. Of note, except for the 2019 consultation of Long-term operation of the CVP, these consultations were concluded prior the development of the literature regarding flow/survival relationships for salmonids in the Sacramento River.
5	How would Sutter Bypass be addressed? <ul style="list-style-type: none"> Volume Timing Duration Different notching scenarios What are the notching goals? What are the functions that are being protected and proposed to be added? 	Tull	5/15/20	Currently developing modeling approach for Sutter Bypass similar to the methodology developed previously for Sac River and Yolo Bypass. Evaluating hydrology to understand the timing of flows in the bypass from Butte Slough and Tisdale to see how it influences bypass habit. See Chris’s response below regrading notching scenarios etc..	Butte Slough flows are much greater than Tisdale Weir spills and may offer opportunity to minimize impacts in the bypass

	<p>How would other Sutter projects like Tisdale be addressed?</p> <ul style="list-style-type: none"> • Volume • Timing • Duration • Different notching scenarios <p>What are the notching goals?</p>	Fitzer	5/15/20	Two projects are being contemplated for Tisdale Weir: Adult Fish Passage (by DWR) and Spring Rearing Habitat (part of Voluntary Agreements). An NOP for an EIR was published in April 2019 for the Adult Passage Project. Environmental Review has not been initiated for Spring Rearing Flows Project. Additional details for each project are provided below.	<p>Adult Passage Project:</p> <ul style="list-style-type: none"> • No operations criteria are available at this time; however, project goals are to address adult fish passage issues that occur when the weir no longer overtops (spills) on the receding limb of the Sacramento River hydrograph. Operable gate would be lowered during this period to provide continued flow and volitional passage conditions to continue their movement through the Bypass, over (or through) the Tisdale Weir, and into the Sacramento River. • Based on internal discussions, Sites Project diversions would not be likely to adversely affect the Adult Passage Project; however, analysis would be required to confirm. <p>Spring Rearing Flows Project:</p> <ul style="list-style-type: none"> • Preliminary operations plan would target approximately 3,000 cfs into the Sutter Bypass when average monthly Sacramento River flows are between approximately 15,500 cfs and 22,000 cfs. • The current plan for notch operation is December 1 through March 15. • Sites Project diversions have the potential to reduce benefits provided by the project by reducing Sacramento River flows, that may otherwise be routed through the notch and into the Sutter Bypass. • The potential effects of any changes would require analysis. • If adverse impacts are identified, mitigation may be possible through physical modifications to Sutter Bypass, including expanding floodplain terracing of toe drains and/or Butte Slough to maintain no net loss of functioning rearing habitat benefits, and/or addressing passage obstacles in lower Sutter Bypass
Fremont Weir					
5	What is the established purpose and goals for the project?	Fitzer/Lecky	5/15/20	Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project The U.S. Bureau of Reclamation (Reclamation) and the California Department of Water Resources (DWR) have prepared a joint Environmental Impact Statement/Environmental Impact Report (EIS/EIR) to assess impacts of the Project. The Final EIS/EIR was published on June 7, 2019 and the Record of Decision was published on September 9, 2019.	Generally, the purpose of the action is to enhance floodplain rearing habitat and fish passage in the Yolo Bypass and/or other suitable areas of the lower Sacramento River by implementing RPA action I.6.1 and, in part, RPA action I.7, as described in the NMFS 2009 BO on the CVP long-term operations, to benefit Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, and the Southern DPS of North American green sturgeon. Detailed description of purpose and need and objective sis provided below.
6	Would Sites prevent the project from meeting the purpose and goal of the Fremont Weir project?	Fitzer	5/15/20	See above.	Sites Project diversions would not prevent the project form meeting its purpose or objectives. However, an analysis of project impacts would be required to determine whether, and to what extent, the Sites Project diversions would reduce the potential benefits provided by the project.
7	<p>Would Sites change the purpose and goal of the Fremont Weir project?</p> <ul style="list-style-type: none"> • If so how would we effect it • What would be the effect of that change <ul style="list-style-type: none"> ○ Volume ○ Timing ○ Duration 	Fitzer/Tull	5/15/20	See above. Tull – we are refining the daily flow pattern for Fremont Weir to improve our ability to assess the potential volume, timing, and duration changes due to Sites operations.	See above. Sites Project diversions have the potential to reduce benefits provided by the project by reducing Sacramento River flows, that may otherwise be routed through the notch and into the Yolo Bypass. The potential effects of any changes would require analysis. If adverse impacts are identified, mitigation may be possible through physical modifications to Yolo Bypass, including expanding floodplain terracing of Tule Drain/ Toe Drain to maintain no net loss of functioning rearing habitat benefits.

	<ul style="list-style-type: none"> ○ Fish growth and/or outmigration ○ Wetted acres ○ 				
8	<p>What are the existing BiOP and ITP conditions for the weir?</p> <ul style="list-style-type: none"> • How do we effect those? 	Lecky	5/15/20	NMFS concluded consultation with the U.S. Bureau of Reclamation on May 10, 2019 on the effects of construction and operation of a notch in the Fremont weir.	<p>The opinion concludes the project is a beneficial action that will result in improved migratory and rearing conditions of all listed anadromous species in the Sacramento River. There is an expectation that the notch will provide up to 6,000 CFS of flow into the Yolo Bypass prior the overtopping of Fremont Weir by flood flows in the Sacramento River (emphasis added). There is no discussion of estimated wetted area expected to be achieved by 6,000 CFS and no discussion of deviation from the expected level of flow. The biological opinion concludes the proposed action in not likely to jeopardize the continued existence of any listed fish under NMFS jurisdiction nor destroy or adversely modify critical habitat designated for any listed fish under NMFS jurisdiction. Given this is a “no jeopardy” biological opinion, NMFS has an expectation that the proposed action will be implemented as it is described in the biological assessment prepared by the Bureau of Reclamation for the consultation. The only requirements imposed of the project in the incidental take statement appended to the opinion are 1) implementation of measures to minimize impacts to listed species and their critical habitats from project specific activities, particularly during construction; and 2) taking measures to ensure implementation of the monitoring and adaptive management as detailed in the BA.</p> <p>See above re potential for reduction of benefits and whether any reduction would be meaningful.</p>
Delta					
8	How does the ITP NDOI effect the current Sites criteria?	Tull	5/15/20	We are currently evaluating the ITP operations and requirements. There are many actions in the ITP that are not well defined that may influence Sties operations and ability to export water through Banks to SOD members. We are conducting preliminary sensitivity analyses with ITP NDOI represented by 44,500 cfs outflow to get an idea of potential changes.	There are conflicts between ROC on LTO and ITP actions that will take some time and coordination with USBR and DWR to sort out.
9	<p>What is in the ITP for Freeport and NDOI?</p> <ul style="list-style-type: none"> • Are we different from that? • How we are different than those components as described in the ITP? <p>Using all existing criteria, how would Sites effect potential projects that are in the pipeline such as DC?</p> <ul style="list-style-type: none"> • Freeport flow changes • Water or diversion capacity changes from planned or existing projects. 	Lecky/Tull	5/15/20	<p>The ITP does not include a Freeport flow requirement. Sites includes flow target to meet Delta water quality standards.</p> <p>ITP includes export curtailments for Spring outflow from April 1-May 31. These are implemented by managing the I/E ratio of Vernalis Flow and exports at CVP and SWP by water year type.</p> <p>These curtailments do not apply If the three-day average Delta outflow is greater than 44,500 cfs, then project operations shall not be controlled by this Condition until the flows drop below 44,500 cfs on a three-day average.</p>	<p>the Voluntary Agreements may include export reductions, to maintain the SWP and CVP's long-term average contribution toward Delta outflow during the spring-time period.</p> <p>The ratios used to establish export restrictions by water year type are a tool that incorporates San Joaquin River inflow while also allowing for a high outflow off ramp or 44,500 cfs, which is expected to be driven by inflow form the Sacramento River.</p> <p>The extent to which voluntary agreements are relied on to maintain a high level of delta outflow, would likely limit Sites ability to divert and deliver water.</p>

Tisdale Weir Rehabilitation and Fish Passage Project

The California Department of Water Resources (DWR) Division of Flood Management proposes to construct, operate and maintain the Tisdale Weir Rehabilitation and Fish Passage Project, which would integrate structural rehabilitation of the Tisdale Weir along with installation of fish passage facilities to allow upstream migrating fish (salmon and sturgeon) access to the Sacramento River. The Tisdale Weir and Bypass are critical components of the Sacramento River Flood Control Project.

Structural rehabilitation to the Tisdale Weir would include replacing southern and northern abutment walls; removing and replacing energy dissipation basin; and injection grouting and patching the weir. Fish passage facility installation would include a reconstructing the energy dissipation basin on the downstream side of the weir to facilitate fish collection and passage through a notch in the weir; installing a notch in the existing weir, installing operable gates (for flow regulation) in the notch, installing an equipment access pad and attendant facilities at the north end of the weir; an access ramp; and constructing a channel connecting the notch in the weir to the Sacramento River.

Operations Criteria

- No operations criteria are available at this time; however, project goals are to address adult fish passage issues that occur when the weir no longer overtops (spills) on the receding limb of the Sacramento River hydrograph. To achieve this goal, the operable gate would be lowered during this period to provide continued flow and volitional passage conditions to continue their movement through the Bypass, over (or through) the Tisdale Weir, and into the Sacramento River.
- Based on internal discussions, Sites Project diversions would not adversely affect Tisdale Weir Rehabilitation and Fish Passage Project because its purpose is to improve passage conditions for adults in the Sutter Bypass when the weir no longer overtops (spills) on the receding limb of the Sacramento River hydrograph.
- This project is currently not being formulated or designed to provide winter/spring rearing flows; a separate project is being contemplated that considers operating notch to provide sustained spring flows down the Sutter Bypass (see below).

Environmental Review and Compliance Status:

- DWR filed a Notice of Preparation for an Environmental Impact Report (EIR) on April 15, 2019.
- No other schedule details are publically available at this time; however, it has been said that a public draft EIR is being targeted for fall of 2020.

Tisdale Weir Project

The construction of an operable notch in the Tisdale Weir (Tisdale Weir Project) was committed to as part of the Sacramento River Voluntary Settlement Agreement (VSA). The assumptions for operations are based on the most current understanding of the Tisdale Weir Project and are appropriate for modeling the effects of the project as part of the VSA alternative.

The most current plans for the Tisdale Weir Project include an operable gate to provide some measure of flow control. This will allow the notch to be operated to manage flow into the Sutter Bypass.

The existing Tisdale Weir begins spilling at a flow of approximately 23,000 cubic feet per second (cfs), or at a stage of approximately 45.5 feet, in the Sacramento River at Wilkins Slough. Both CalSim II and SacWAM include assumptions that spills begin to occur at an average monthly flow greater than 18,000 cfs. The difference between the actual flow, and the model simulated flow when spills begin over the existing weir, is due to the monthly time-step in the models. A review of historical daily data (provided by MBK Engineers) for the period water year 1970 through June 2019 shows that when the Tisdale Weir spills, the average monthly flow in the Sacramento River at Wilkins Slough is typically 18,000 cfs or more.

Operations Criteria

- The preliminary operations plan would target approximately 3,000 cfs into the Sutter Bypass based on preliminary estimates of habitat in the lower Sutter Bypass.
- A flow of approximately 3,000 cfs could be provided through the notch and over the existing weir when average monthly Sacramento River flows are between approximately 15,500 cfs and 22,000 cfs.
- The current plan for when the Tisdale Weir Project would open/operate the notch is from December 1 through March 15 each year.

Environmental Review and Compliance Status:

- This project has not initiated environmental review.

Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project

The Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project has been developed to improve fish passage and increase floodplain fisheries rearing habitat in the Yolo Bypass and the lower Sacramento River basin. The Project actions would implement Reasonable and Prudent Alternative (RPA) action I.6.1 and, in part, RPA action I.7, as described in the 2009 NMFS Biological Opinion and Conference Opinion on the Long-Term Operations of the Central Valley Project and State Water Project (NMFS BO) and the 2012 Yolo Bypass Salmonid Habitat Restoration and Fish Passage Implementation Plan (Reclamation and DWR 2012).

Project Purpose and Objectives

Project Purpose

The stated need for action is decreased habitat quality in the Sacramento River and an inadequate ability to access higher quality habitat, which has led to a decline in abundance, spatial distribution, and life history diversity associated with native ESA- and CESA-listed fish species.

The purpose of the action is to enhance floodplain rearing habitat and fish passage in the Yolo Bypass and/or other suitable areas of the lower Sacramento River by implementing RPA action I.6.1 and, in part, RPA action I.7, as described in the NMFS BO, to benefit Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, and the Southern DPS of North American green sturgeon.

Project Objectives

The objective of RPA action I.6.1 is to increase the availability of floodplain fisheries rearing habitat for juvenile Sacramento River Winter-run Chinook Salmon, Central Valley Spring-run Chinook Salmon, and Central Valley Steelhead. This action can also improve conditions for Sacramento Splittail and Central Valley Fall-run Chinook Salmon. Specific biological objectives include:

- Improve access to seasonal habitat through volitional entry
- Increase access to and acreage of seasonal floodplain fisheries rearing habitat
- Reduce stranding and presence of migration barriers
- Increase aquatic primary and secondary biotic production to provide food through an ecosystem approach

The objective of RPA action I.7 is to reduce migratory delays and loss of fish at Fremont Weir and other structures in the Yolo Bypass. Specific biological objectives include:

- Improve connectivity within the Yolo Bypass for passage of salmonids and green sturgeon
- Improve connectivity between the Sacramento River and the Yolo Bypass to provide safe and timely passage for:
 - Adult Sacramento River winter-run Chinook salmon between mid-November and May when water surface elevations in the Sacramento River are amenable to fish passage
 - Adult Central Valley spring-run Chinook salmon between January and May when elevations in the Sacramento River are amenable to fish passage

- Adult California Central Valley steelhead in the event their presence overlaps with the defined seasonal window for other target species when elevations in the Sacramento River are amenable to fish passage
- Adult Southern DPS green sturgeon between February and May when elevations in the Sacramento River are amenable to fish passage

Operations Criteria (Alternative 1: East Side Gated Notch (Proposed Project))

Alternative 1, East Side Gated Notch, would allow increased flow from the Sacramento River to enter the Yolo Bypass through a gated notch on the east side of Fremont Weir. The gated notch would create an opening in Fremont Weir, that is deeper than Fremont Weir, with gates to control water going through the facility into the Yolo Bypass. The invert of the new notch would be at an elevation of 14 feet, which is approximately 18 feet below the existing Fremont Weir crest. Water would be able to flow through the notch from November 1 through March 15 when the river elevations are not high enough to go over the crest of Fremont Weir (at an elevation of 32 feet).

Alternative 1 would connect the new gated notch to Tule Pond with a channel that parallels the existing east levee of the Yolo Bypass. Alternative 1 would have the shortest and most direct access to the Tule Canal for migrating fish. Alternative 1 would allow flows up to 6,000 cfs, depending on Sacramento River elevation, through the gated notch to provide open channel flow for adult fish passage, juvenile emigration, and floodplain inundation. This alternative would include a supplemental fish passage facility on the west side of Fremont Weir and improvements to allow fish to pass through Agricultural Road Crossing 1 and the channel north of Agricultural Road Crossing 1.

Gate operations could begin each year on November 1 and would first open based on river conditions. All gates would be opened when the river elevation reaches 15 feet, which is one foot above the lowest gate invert. At this river elevation, about 130 cfs would enter the gated notch. If the river continues to rise, the gates would stay open until the flow through the gates reaches 6,000 cfs.

All gates would close when the river elevation falls below 14 feet. Gate operations to increase inundation could continue through March 15 of each year, based on hydrologic conditions. The gates may remain partially open after March 15 to provide adult fish passage. However, flows through the gates after March 15 could not exceed the available capacity of Tule Canal (typically about 300 cfs) so that these flows do not inundate areas outside of the canal and affect landowners.

Environmental Review and Compliance Status:

The U.S. Bureau of Reclamation (Reclamation) and the California Department of Water Resources (DWR) have prepared a joint Environmental Impact Statement/Environmental Impact Report (EIS/EIR) to assess impacts of the Project. The Final EIS/EIR was published on June 7, 2019 and the Record of Decision was published on September 9, 2019.