

Appendix O. Comments and Responses

This appendix contains responses to comments received on the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project (Project) Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR), including all written comments received and oral comments submitted at public meetings. The comment letters are included in Appendix N.

Table O-1 presents commenters and associated agencies or groups that submitted comments on the Draft EIS/EIR.

Table O-1. List of Commenters

Commenter	Agency/Group	Date	Comment ID
Federal Agencies, Federal Elected Officials, and Tribal Governments			
Kathleen Martyn Goforth	United States Environmental Protection Agency	2/14/18	FA01
Carl Hausner	United States Coast Guard	12/29/17	FA02
Zachary Simmons	United States Corps of Engineers	2/21/18	FA03
Laverne Bill	Yocha Dehe Wintun Nation	2/15/18	FA04
State Agencies and State Elected Officials			
Tina Bartlett	California Department of Fish and Wildlife	2/15/18	SA01
Brian Bugsch	California State Lands Commission	2/15/18	SA02
Adam Laputz	Central Valley Regional Water Quality Control Board	2/15/18	SA03
Erik Vink	Delta Protection Commission	2/15/18	SA04
Terri Gaines	Delta Stewardship Council	2/14/18	SA05
Local Agencies and Local Elected Officials			
Melinda Terry	California Central Valley Flood Control Association	2/15/18	LA01
Leah Orloff	Contra Costa Water District	2/15/18	LA02
Patrick Blacklock	County of Yolo	2/15/18	LA03
Stephen Arakawa	Metropolitan Water District of Southern California	2/15/18	LA04
Melinda Terry	North Delta Water Agency	2/15/18	LA05
Kyle Lang	Reclamation District 1600	1/19/18	LA06
Kyle Lang	Reclamation District 1600	1/25/18	LA07
Kyle Lang	Reclamation District 1600	2/15/18	LA08
Todd Tommeraason	Laugenour and Meikle, on behalf of Reclamation District 1600	2/15/18	LA09
Nicole Goi	Sacramento Municipal Utility District	2/14/18	LA10

Appendix O. Comments and Responses

Commenter	Agency/Group	Date	Comment ID
Jim Provenza	Yolo Habitat Conservancy	2/15/18	LA11
Mark Pruner	Clarksburg Fire Protection District	3/5/18	LA12
Non-Governmental Organizations			
Justin Fredrickson	California Farm Bureau Federation	2/15/18	NG01
John McManus, Noah Oppenheim, Dick Pool, Jeff Richards, and James Stone	Golden Gate Salmon Association, Pacific Coast Federation of Fisherman's Associations, Institute for Fisheries Resources, Coastside Fishing Club, and Nor-Cal Guides and Sportsmen Association	2/14/18	NG02
Bob Schneider	Tuleyome	2/15/18	NG03
Pete Bontadelli	Yolo Basin Foundation	2/14/18	NG04
Members of the Public			
Patrick Huber	Agricultural Sustainability Institute, University of California at Davis	1/24/18	IN01
Dominic Bruno	Bypass Farms/teVelde Family Trust	2/15/18	IN02
Deirdre Des Jardins	California Water Research	2/15/18	IN03
John Brennan and David Katz	Cal Marsh & Farm Ventures, LLC	2/15/18	IN04
Ronald Arendt	Channel Ranch	2/6/18	IN05
Kelley Taber	Conaway Ranch	2/14/18	IN06
Greg Kassis	Glide In Ranch Inc.	1/31/18	IN07
Doug Brown	Lower Sacramento/Delta North Regional Flood Management Planning group	2/15/18	IN08
Selby Mohr	Mound Farms and Sweetwater Company	2/14/18	IN09
Gus Margarite	Rising Wings Duck Club	2/14/18	IN10
Lisa Weger	Weger Interests, Ltd	2/14/18	IN11
M. Reinhart	Not applicable	1/18/18	IN12
Charles Russell	Not applicable	1/17/18	IN13
Donald Stevens	Not applicable	n/a	IN14
Public Meeting Comments			
Jim Provenza	Yolo County	1/17/18	PM01
Steve Thompson	American West Conservation	1/17/18	PM02
Marge Kolar	Yolo Basin Foundation	11/17/18	PM03
Don Stevens	Glide In Ranch Inc.	1/18/18	PM04
Martha Ozonoff	Yolo Basin Foundation	1/18/18	PM05
Sandy Pettis	Not applicable	1/18/18	PM06
John Legakis	Senator Outing Duck Club	1/18/18	PM07

Master Responses

Multiple comments were received on several similar issues. The Master Responses below provide responses to these groups of comments and are referenced in response to individual comments in this document as appropriate.

Master Response 1: Fish Benefits

Major California restoration planning efforts over the past several decades have focused on the Yolo Bypass as a prime area of the Sacramento Valley for enhancement of seasonal floodplain rearing habitat (United States Department of the Interior, Bureau of Reclamation [Reclamation], and California Department of Water Resources [DWR] 2012). The National Marine Fisheries Service (NMFS) specifically identified juvenile rearing and migration habitats, including floodplain habitat, as limited under current conditions for all anadromous fish species in the Sacramento River Basin because of flood management and reservoir storage operations (NMFS 2009, 2014, 2017). Based on studies suggesting increased growth of juvenile Chinook salmon rearing in the Yolo Bypass relative to the Sacramento River, NMFS identified increased floodplain habitat availability in the Yolo Bypass as a key action to improve juvenile habitat conditions and population diversity for winter-run and spring-run Chinook salmon (NMFS 2009, 2014). NMFS also identified the need for improved passage of adult and juvenile salmonids and green sturgeon through the Yolo Bypass and between the Yolo Bypass and Sacramento River to improve population conditions for Endangered Species Act (ESA) listed species (NMFS 2009, 2014).

Benefits Discussed in Scientific Literature

The following discussion provides a qualitative summary of the expected benefits to target fish species under the Project alternatives (except for the No Action Alternative) relative to existing conditions.

In general, floodplains can provide conditions that support relatively higher biodiversity and productivity relative to conditions in river channels (Tockner and Stanford 2002; Junk et al. 1989; Opperman et al. 2009; Opperman et al. 2010; Jeffres et al. 2008; Killgore and Miller 1995). As summarized by Opperman et al. (2017), previously developed river-floodplain conceptual frameworks all emphasize the importance of the hydrology and connectivity for maintaining flood processes and the ecosystem benefits provided by these processes (see Section 8.1.3.1). In the Yolo Bypass and Cosumnes River floodplains, phytoplankton productivity was shown to be positively correlated with residence time of water on the floodplain (Schemel et al. 2004, Ahearn et al. 2006). In addition, the distribution of aquatic invertebrates can be influenced by the floodplain's hydrologic characteristics, and their productivity has been found to be higher on floodplains than in adjacent rivers (see Opperman et al. 2017) (see Section 8.1.3.2).

Therefore, active management of flooding of the Yolo Bypass under the Project alternatives could improve the potential for creating more favorable conditions for primary production (e.g., production of algae) and secondary productivity (e.g., production of zooplankton that feeds on algae) in the Yolo Bypass relative to existing conditions, which could increase food availability for juvenile salmonids and other fish species.

Active management of flooding the Yolo Bypass (e.g., through inundation timing, duration, and frequency), also could greatly increase its contribution to productivity downstream of the Yolo Bypass (Opperman et al. 2017). Schemel et al. (2004) also stated that multiple flooding and draining sequences within the Yolo Bypass may produce more phytoplankton for export to the Sacramento-San Joaquin Delta (Delta) relative to a single flooding event. Therefore, active management of the Yolo Bypass to control the timing, duration and frequency of inundation could result in higher potential for transporting more productive waters to the Delta relative to existing conditions (see Section 8.1.3.2).

Increased spawning success, growth, or abundance of various fish species on inundated floodplains relative to mainstem rivers has been documented in many temperate river-floodplain systems (see Section 8.1.3.3.3). Further, Opperman et al. (2017, p. 57) stated that "...there is likely to be a direct, positive relationship between total floodplain area connected to rivers and levels of productivity, biodiversity, and ecosystem services supported by floodplains." For example, production of Sacramento splittail in the Yolo Bypass exhibited a significant positive relationship with the amount of available floodplain habitat during the peak spawning and juvenile rearing period (Feyrer et al. 2006). Juvenile Chinook salmon collected from the Yolo Bypass also were significantly larger than individuals collected from the Sacramento River (Sommer et al. 2001). Bioenergetics modeling suggested that feeding success of Chinook salmon was greater in the floodplain, despite increased metabolic costs of rearing in warmer floodplain water (Sommer et al. 2001). The potential for increased juvenile fish growth rates resulting from highly productive floodplain habitat could be a critical component of improving the adult return rates of Chinook salmon populations. Larger sizes of juvenile salmonids emigrating to the ocean have been correlated with a higher probability of surviving a laboratory seawater challenge (Beakes et al. 2010) and a higher probability of returning to spawn as an adult (Bond et al. 2008). In addition to the increased juvenile growth, the use of floodplain habitat by Central Valley salmonids promotes life history diversity, which could increase the resiliency of Central Valley salmonids in response to varying ecological conditions (Carlson and Satterthwaite 2011). Variability of timing of ocean entry is likely an important bet-hedging strategy to increase the odds of at least a portion of the population arriving during periods of upwelling and adequate food availability. Therefore, increased frequency and duration of inundation of the Yolo Bypass under the Project alternatives are generally expected to increase population viability for species such as Sacramento splittail and Chinook salmon relative to existing conditions.

Generally, native species, including juvenile Chinook salmon, adult Sacramento splittail, juvenile lamprey, juvenile white sturgeon, and juvenile Sacramento pikeminnow, are in greatest abundance in the Sacramento River system during January through April, and non-native species are heavily dominant during April through June (Sommer et al. 2004; Sommer et al. 2014; DWR 2016, as cited in DWR and Reclamation 2017) (see Section 8.1.3.3.2). Because the Project alternatives would increase inundation of the Yolo Bypass primarily during January through up to March 15, the Project alternatives are expected to improve habitat conditions for native fish species more than non-native fish species relative to existing conditions.

As summarized by California Department of Fish and Game (CDFG) 2010, the benefit of flood events to an aquatic system is highly variable, transient, and dynamic. Flood events can temporarily provide optimal fish habitat conditions, but these conditions may only occur for a particular species at specific times and under particular conditions (CDFG 2010). For example, in temperate regions, the timing of floodplain inundation and the associated light and/or

temperature regime may determine the associated biological effects (Junk et al. 1989; Junk and Wantzen 2004). Because the Project alternatives allow for the potential to modify inundation patterns in the Yolo Bypass in response to habitat and biological monitoring over time, the Project alternatives can be adaptively managed to optimize habitat conditions for targeted fish species and life stages, and to minimize benefits to non-native fish species (see Appendix C, *Adaptive Management Biological Objectives*).

In addition to the expected improvements in habitat conditions for target fish species in the Yolo Bypass due to increased inundation summarized above, the Project alternatives include construction of a notch in the Fremont Weir and one or more transport channels in the Yolo Bypass to allow for more successful migration of juvenile and adult fishes between the Sacramento River and the Yolo Bypass, and between Fremont Weir and the Tule Pond. Therefore, during conditions when water is not overtopping the Fremont Weir and sufficient water is flowing through the intake facilities and transport channel(s), the Project alternatives would reduce the potential for temporary or permanent juvenile and adult stranding in the upper region of Yolo Bypass relative to existing conditions. In addition, all Project alternatives include the remediation of Agricultural Road Crossing 1 to provide for more suitable passage conditions through Tule Canal more frequently relative to existing conditions (see Section 8.5.3). These actions are expected to reduce mortality of juvenile and adult anadromous fish species in the Yolo Bypass, and increase spawning opportunities for adults migrating through the Yolo Bypass.

Relative Quantitative Benefits from Modeling

In addition to the expected benefits to fisheries resources in the Yolo Bypass summarized above, hydrologic, hydraulic and fisheries modeling conducted for the Project alternative scenarios and the existing conditions scenario were applied to simulate relative quantitative benefits of the No Action and other Project Alternatives relative to existing conditions. Models were used to quantify relative differences in abundance of juvenile Chinook salmon accessing and rearing in the Yolo Bypass, wetted area of the Yolo Bypass, hydraulic habitat availability for pre-smolt and smolt life stages of Chinook salmon, variation in juvenile Chinook salmon length, variation in juvenile Chinook salmon estuary entry timing, and abundance of adult Chinook salmon returns. Generalized relative differences in these metrics under the Project alternatives relative to existing conditions are summarized below.

Hydrologic modeling results indicate that Project alternatives would provide the opportunity for greater numbers of juvenile winter-run and spring-run Chinook salmon to rear in the Yolo Bypass for one or more days relative to existing conditions. All Project alternatives also would provide for some winter-run and spring-run Chinook salmon juvenile rearing in the Yolo Bypass over about 30 percent of the time when very few or no juveniles would be rearing in the Yolo Bypass under existing conditions (see Section 8.5.2.1).

Hydrologic and hydraulic modeling results indicate that all Project alternatives would provide more hydraulic habitat availability for juvenile Chinook salmon, juvenile steelhead, and adult and juvenile Sacramento splittail in the Yolo Bypass relative to existing conditions (see Section 8.5.2.2).

Hydrologic and hydraulic modeling results indicate that Project Alternatives would result in increased frequency and duration of inundation of the Yolo Bypass relative to existing conditions. An increase in frequency and duration of inundation of shallow-water habitat in the

Yolo Bypass would be expected to increase primary production in the Yolo Bypass (Lehman et al. 2007). Therefore, Project alternatives would be expected to increase primary and potentially secondary production in the Yolo Bypass relative to existing conditions. In addition, modeled increases in wetted area for longer durations could increase the exportation of phytoplankton and zooplankton into the Delta downstream of the Yolo Bypass under Project alternatives relative to existing conditions (see Section 8.5.4).

Based on the modeling of variation in juvenile Chinook salmon length and estuary entry timing, the Project alternatives would increase life history diversity of winter-run and spring-run Chinook salmon relative to existing conditions (see Section 8.5.7). Based on the modeling of adult Chinook salmon returns, the Project alternatives would increase adult returns of winter-run and spring-run Chinook salmon relative to existing conditions (see Section 8.5.8).

Overall, based on both qualitative and relative quantitative assessments, relative to existing conditions, the Project alternatives are expected to improve population conditions of target fish species, including winter-run and spring-run Chinook salmon, steelhead, Sacramento splittail, and green and white sturgeon.

Master Response 2: Science Review Panel

Multiple commenters had questions about the Science Review Panel findings, and how those findings would be addressed. In 2017, Reclamation and DWR requested the Delta Science Program to perform an independent peer review of the tools being used in this EIS/EIR. The review panel received information on the tools in August 2017 and met in September 2017. At the meeting, the panel heard presentations from model developers and had the opportunity to ask questions and hear public comments. The panel issued a report that documented their findings in October 2017 (Tompkins et al. 2017).

The report found “all of the selected approaches and tools appropriate for selecting a notch location and configuration” (Tompkins et al. 2017). The panel also recommended improvements for consideration in the future. Many commenters wanted to understand if and when Reclamation and DWR would make those modeling improvements.

Reclamation and DWR have developed a Science Work Plan to outline a plan for modeling and monitoring for the project (Reclamation and DWR 2018). This Science Work Plan will serve as the guiding document to outline the necessary steps to incorporate key Panel recommendations and to successfully implement the Project. The Science Work Plan identifies actions within three phases of project development:

- Phase 1: EIS/EIR– modeling improvements to occur before release of the Final EIS/EIR to assist in impact evaluation.
- Phase 2: Project Optimization – modeling improvements and/or monitoring activities to occur during design to help optimize the selected alternative.
- Phase 3: Project Operation – modeling and monitoring activities to occur during project operations to help operate the project and provide information for adaptive management.

The specific improvements proposed for each phase are summarized below from the Science Work Plan.

Phase 1 Improvements

The modeling and analysis completed as part of the Draft EIS/EIR along with the additional improvement described above are sufficient to address and disclose the potential impacts of the proposed alternative, which will be considered during the decision-making process. Numerous comments were received on the Draft EIS/EIR suggesting other methods and models for evaluating the potential impacts; however, it should be noted that the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) do not require a lead agency to conduct every test or perform all research, study, and experimentation recommended or demanded by commentors (State CEQA Guidelines Section 15204; 40 CFR 1503)

Phase 2 Improvements

The following activities are planned to help optimize the selected alternative during the design phase:

- Updates to SRH2D: SRH2D is the 2D flow model currently in use. Improvements will focus on calibrating the model during higher river stages based on monitoring data from 2016.
- Updates to ELAM: the ELAM fish behavior model will be updated to incorporate the 3D model or the updated SJR2D model version.
- New 3-D flow model: a new 3D flow model to characterize secondary circulation patterns that have a major role in distribution of fish.
- Updates to the Salmon Benefits Model (SBM): the SBM would be refined to update entrainment and survival patterns, consistent with the other entrainment tools and recent studies on survival. This update will use information from the ELAM updates as the basis for entrainment improvements. This work is included in Phase 2 because it would help optimize design of the alternative and operations (to clarify when juveniles should enter the Yolo Bypass or stay in the Sacramento River).
- Data Collection: during this period, Reclamation and DWR will continue to collect data on water levels, flow patterns, fish position, and fish size.

Phase 3 Improvements

The details of Phase 3 actions would be developed based on the biological objectives in Appendix C and the scientific questions that remain after Phases 1 and 2.

Master Response 3: Inundation Period

Commenters suggested expanding the operational period for the gated notch to allow inundation of floodplain rearing habitat earlier in the season (October) or later in the season (until June). Other commenters suggested that the proposed end dates of March 15 and March 7 should be earlier so that floodplain inundation operations would end on March 1. The reasons behind the inundation period are described below.

October Operations

Commenters indicated that operations in October may be able to help winter-run Chinook salmon. The comments indicated that winter-run fry may be present in large numbers in October, so entraining them onto the floodplain could provide benefits.

This operation was not incorporated into the action alternatives because of hydraulic limitations. The gated notches in the alternatives would be operated to open when the Sacramento River elevation is one foot higher than the bottom of the gated notch. For most alternatives, this is about a 17-foot elevation in the Sacramento River on the west side of Fremont Weir. Figure O-1 shows the frequency that Sacramento River elevations at the west side of Fremont Weir exceed each elevation. This figure indicates that the river elevation is only over 17 feet for less than about four percent of the time in October. Operating the gated notch to entrain fish during this period would be very infrequent, and even if the gates were open, very little flow would enter the Yolo Bypass because the river elevation would be less than 18 feet. At these low flow rates, the flow would stay in the Tule Canal and would not create floodplain rearing habitat for the fry that would enter. Additionally, October operations have the potential to adversely affect agricultural use in the Yolo Bypass. For these reasons, October was not added to the time period for floodplain inundation operations.

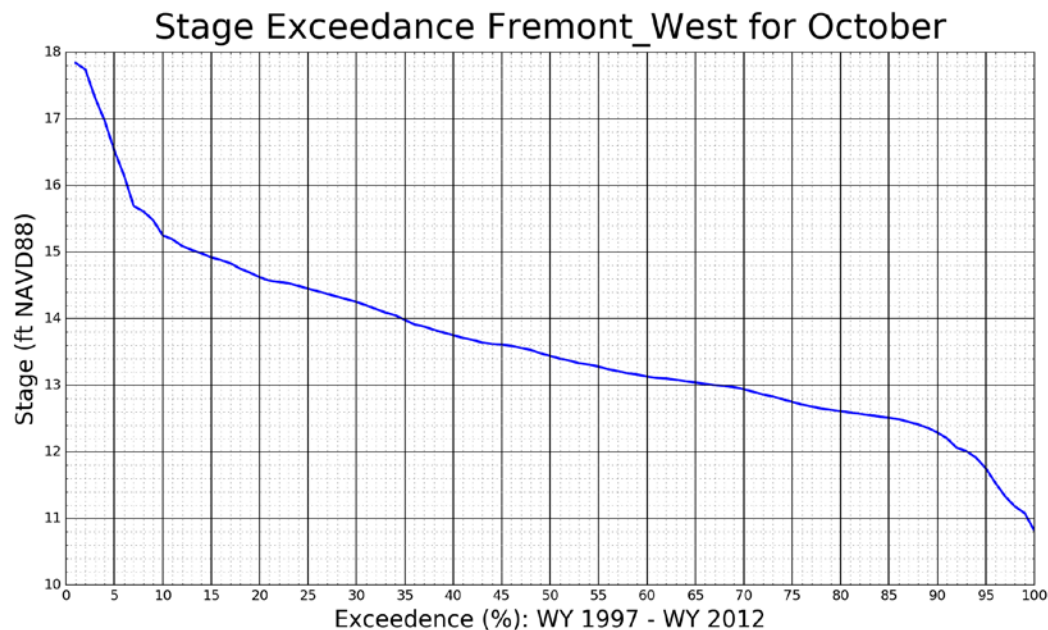


Figure O-1. Sacramento River Elevation Exceedance during October

Source: California Data Exchange Center (CDEC) 2018

March 15 and March 7 Date Selection

The original date considered for the end of inundation operations was April 30 to capture most outmigrating winter-run and spring-run Chinook salmon. Reclamation and DWR have been committed to working with the stakeholder community to identify ways to improve the project and make it more acceptable, and the stakeholder group suggested that an earlier operations end date would reduce effects to agricultural users and managed wetlands in the Yolo Bypass. This

concept was reinforced by the results of the agricultural economic modeling (see Appendix K1 [formerly Appendix J1]), which found that the economic effects would be reduced substantially with an operations end date of March 15. Public comments suggested that the inundation end date should extend to the end of June to continue to provide benefits; however, this proposed operation would increase the potential economic effects to agricultural users. In addition to the decreased yields experienced with a March 15 end date, inundation through June would likely result in idling of agricultural fields because the fields would not drain in time to be planted.

Reclamation and DWR examined data that showed the presence of juvenile Chinook salmon near the Fremont Weir, as shown in data from the Knights Landing Rotary Screw Trap. Table O-2 shows the average percent of catch that have arrived at different dates through the season. While a March 15 end date is less than optimal for entraining spring- and fall-run Chinook salmon, it allows for the project to operate while most of the Chinook salmon populations migrate past the Fremont Weir. Additionally, many of the fall-run fish that emigrate past the Fremont Weir in May and June are smolts, which may benefit by staying in the Sacramento River and continuing their migration to their saline environments. March 7 was also considered because the difference in fish presence between March 7 and March 15 is small.

Table O-2. Average cumulative percent of juvenile Chinook salmon population (by run) present in the Knights Landing rotary screw trap for water years 1997-2011.

Date	Fall	Late Fall	Winter	Spring
Nov 1	0.0%	1.3%	1.9%	0.0%
Dec 1	0.0%	11.4%	13.5%	3.9%
Jan 1	5.4%	48.1%	52.0%	37.8%
Feb 1	36.8%	67.6%	78.2%	57.8%
Mar 1	73.2%	68.3%	94.4%	76.6%
Mar 7	76.6%	68.3%	96.3%	78.8%
Mar 15	78.8%	68.3%	98.0%	80.8%
Mar 31	83.3%	68.3%	99.4%	93.7%
Apr 30	94.6%	84.7%	99.9%	100.0%

Source: Knights Landing Rotary Screw Trap Data, see Appendix G3

The operational end dates of March 7 and March 15 best balance benefits to juvenile Chinook salmon (specifically, the focus runs of winter-run and spring-run) with reducing adverse effects to agricultural users and managed wetlands. These end dates remain in this EIS/EIR analysis.

Master Response 4: Impacts to Landowners and Other Users of Land

Several commenters asked about how Reclamation and DWR will acquire property or easements, how Reclamation and DWR will value property, and whether Reclamation and DWR will consider using eminent domain to acquire property rights. Some commenters also stated that the EIS/EIR should quantify costs to landowners and other users of land (including tenants, duck club owners and users and wildlife area managers). These costs could include increased sediment removal, field preparation and increased maintenance, such as increased wear and tear on facilities. These commenters also stated that the EIS/EIR should specify mitigation for these increased costs, as well as the costs of that mitigation.

Comments directed at these issues are generally speculative as to operational costs and land valuation concerns related to effects and impacts to landowners and other users of land as a result of the proposed project. These impacts do not have a physical effect on the environment and are, therefore, not comments relating to an environmental impact resulting from the proposed project that need to be discussed in this EIS/EIR. However, this EIS/EIR provides some information and background on these issues to ensure that the public and decision makers have a better understanding of the context in which these issues will be addressed and how they relate to the environmental issues discussed in the EIS/EIR.

Agricultural Impacts

The Draft EIS/EIR discussed impacts on agriculture, as an environmental resource, and found that there were no significant environmental effects on agriculture under CEQA.

CEQA and the National Environmental Policy Act (NEPA) require that a public agency identify and discuss the environmental impacts or effects of a proposed project. Issues raised by the commenters focus on the role of agriculture in the Yolo Bypass, including the Yolo Bypass Wildlife Area, and for specific landowners and users of land. Chapter 11, *Land Use and Agricultural Resources*, discusses these issues in the context required under CEQA and NEPA. Impacts under CEQA and NEPA relate to the physical resource of the land itself. If, for example, prime farmland were to be converted permanently to nonagricultural use, this could result in a potential significant environmental effect and appropriate mitigation under CEQA and/or NEPA might include protecting other agricultural land through fee or easements. Such a situation (involving land conversion) does not exist here for Alternatives 1, 2, 3, 5, and 6. Alternative 4 would convert agricultural land near the water control structures. This impact is mitigated, but would remain significant and unavoidable after mitigation.

Under the proposed project, agricultural lands would remain designated for agricultural use, but some fields could be fallowed or shifted to alternative crops, perhaps more than currently occurs under existing conditions. Project actions associated with the proposed project would be consistent with relevant existing land use plans, policies, or regulations (that have been adopted to avoid or mitigate effects to agriculture) and would not occur near a community. Prime Farmland, Unique Farmland, or Farmland of Statewide Importance would not be converted to nonagricultural uses by construction of Project alternatives or increased periods of inundation. CEQA does not require analysis of effects to the productivity of grazing land, but DWR and Reclamation have also reviewed potential grazing land and have assessed the potential for project operations to increase growth of invasive species on grazing land, which could decrease the production of a field for grazing purposes (see Chapter 16).

Socioeconomic Impacts

CEQA does not generally require analysis of economic or social impacts, although a lead agency may voluntarily choose to do so. Only if economic or social impacts cause a physical change resulting in an adverse effect on the environment would an EIR potentially need to discuss the economic or social impacts that caused the environmental effect. NEPA requires an EIS to discuss economic or social impacts that are inter-related to the project.

In this case, DWR and Reclamation included a discussion of socioeconomic impacts relating to the project in Chapter 16, *Socioeconomics*. The impacts discussed include the direct, indirect,

and induced effect of the proposed project on the regional economy, including the effect on jobs, labor income, and output and the likelihood of whether the proposed project could reduce agricultural production in the region. Chapter 16 identified both positive and negative socioeconomic impacts. Comments do not dispute the type of impacts identified. Some of the comments raise specific criticisms of the analysis used to determine these impacts. Responses to these comments are found in the individual responses to the specific comments.

Some commenters have questioned how Reclamation and DWR will address socioeconomic impacts. As noted above, there is no legal requirement to mitigate for purely socioeconomic impacts caused by a project under CEQA. Reclamation has worked to incorporate measures into the project to avoid or reduce socioeconomic impacts under NEPA, including the inundation end date of March 15 (or March 7).

Just Compensation

Impacts relating to compensation for use of a landowner's land are not environmental impacts and do not need to be discussed in the EIS/EIR. Discussions relating to just compensation to be paid to specific landowners will take place outside of the CEQA/NEPA process.

The United States and California Constitutions prohibit the taking of property without just compensation. DWR and Reclamation recognize that some properties may be affected by the construction activities and that, as a result of operation of the proposed project, some properties may be subject to increased inundation. DWR and Reclamation also recognize that there are existing flood and habitat easements on some of the properties potentially affected. DWR and Reclamation will work with each individual landowner to determine whether there are adverse impacts to the property owners and what kind of compensation is appropriate. This is part of the normal right of way activities carried out by these agencies.

DWR and Reclamation have stated that they intend to work with willing sellers to acquire the necessary property rights for project implementation. DWR and Reclamation will discuss property rights with individual landowners, including farmers, ranchers, duck club owners, and other types of landowners.

Compensation to Users of Land

Some commenters have stated that increased inundation of land as a result of project operations could increase costs to individuals or classes of individuals, such as farmers, as a result of increased sediment removal, additional field preparation, and increased costs of operation and maintenance. It could also result in reduced days of hunting or wildlife watching.

The environmental impacts are considered (such as the loss of recreational opportunities), but the increased costs are not considered environmental impacts and NEPA and CEQA do not require mitigation to reduce such impacts. Discussions related to compensation to users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Detailed Comments and Responses

Individual responses to comments are presented in the following section.

Federal Agencies, Federal Elected Officials, and Tribal Governments

Comment Letter FA01, Kathleen Martyn Goforth, United States Environmental Protection Agency

Comment FA01-1

Comment

The U.S. Environmental Protection Agency has reviewed the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project Draft Environmental Impact Statement (DEIS) pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality regulations (40 CFR Parts 1500- 1508), and our NEPA review authority under Section 309 of the Clean Air Act. EPA is a cooperating agency for this DEIS.

The U.S. Bureau of Reclamation and the Department of Water Resources are proposing to take steps to improve fish passage and rearing habitat in the Yolo Bypass. The DEIS analyzes the effects of six action alternatives that would put one or more gated notches in the Fremont Weir and increase the volume of water entering the Yolo Bypass to pull more fish onto the bypass, reduce stranding, and create a large floodplain area for foraging and rearing. The proposed project would implement Reasonable and Prudent Alternative actions, as described in the National Marine Fisheries Biological Opinion on the Long-term Operations of the Central Valley Project and State Water Project.

EPA is supportive of restoration actions in the Bay Delta Estuary that contribute to the health and improvement of aquatic resources. The Alternatives Comparison summary in Chapter 8 of the DEIS clearly examines the benefits of this project to salmon and sturgeon. Analytical summaries such as these provide for a meaningful evaluation and alternatives comparison for the public and decisionmakers.

While strongly supportive of aquatic habitat restoration, we advise caution to ensure that it does not result in unintended consequences that adversely affect water quality. In particular, it is critical that the formation and mobilization of methylmercury in wetlands be minimized.

Response

Responses have been provided to all detailed comments in the submitted comment letter. This comment is assumed to be an introductory comment that does not require a substantive response. See discussion of potential methylmercury impacts in Sections 6.3.3.2.2, 6.3.3.5.2, and 6.3.3.6.2, and in responses to detailed comments below.

Comment FA01-2

Comment

The DEIS does not identify Reclamation's Preferred Alternative. It is EPA's policy to rate each alternative when a preferred alternative is not identified. Based on our review, we are rating Alternatives 1-3 as Lack of Objections (LO) and Alternatives 4-6 as Environmental Concerns-

Insufficient Information (EC-2) (see enclosed "Summary of EPA Rating Definitions"). Alternatives 4-6 would have construction emissions above de minimis National Ambient Air Quality Standards thresholds for nitrous oxide and particulate matter, due to the larger construction footprints compared to Alternatives 1-3. The enclosed detailed comments provide recommendations for reducing air emissions and more fully disclosing potential water quality related impacts.

Response

Responses have been provided to all detailed comments in the submitted comment letter. The comment correctly summarizes the findings of the air quality analysis.

Comment FA01-3

Comment

SUMMARY OF EPA RATING DEFINITIONS*

This rating system was developed as a means to summarize the U.S. Environmental Protection Agency's (EPA) level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the Environmental Impact Statement (EIS).

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental

quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

ADEQUACY OF THE IMPACT STATEMENT

"Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, Policy and Procedures for the Review of Federal Actions Impacting the Environment.

Response

This comment presents the U.S. Environmental Protection Agency's (USEPA's) EIS rating definitions and does not require a response.

Comment FA01-4

Comment

Water Quality

The DEIS explains that, when the Yolo Bypass is flooded, it becomes the dominant source of methylmercury to the Delta, and that restoration activities are likely to result in increased production, mobilization, and bioavailability of methylmercury in the aquatic system (p. 6-27). It

states that monitoring will be conducted, but does not specify the type of monitoring nor how the results would be applied, e.g., to support adaptive management.

Response

Mitigation Measure MM-WQ-4 is necessarily described in general terms because of the high level of interconnectedness with the Delta Mercury Total Maximum Daily Load (TMDL). Following development of the Bay Delta TMDL for methylmercury, the Central Valley Regional Water Quality Control Board (RWQCB) continues to collect data in the Yolo Bypass when it floods. Several efforts continue or are planned to collect data needed to identify measures to comply with the TMDL. DWR is collecting data for the Delta Mercury Control Program (DMCP) within the Yolo Bypass. The DMCP is developing a model for the Yolo Bypass to examine how operations at Fremont Weir will affect methylation in open water. The model, currently in its calibration phase, will not quantify differences in mercury methylation, but instead will show patterns associated with baseline and alternative water flows. Complementary investigations -- inlet and outlet evaluation and senescent vegetation study -- will help evaluate the bypass as a "sink" or "source" of methylmercury and determine the impact of degrading vegetation on the creation of anaerobic conditions that favor methylmercury formation. The existing Fremont Weir functions passively and represents baseline conditions for mercury methylation during flooding of the bypass. After project construction, operation of the weir may encourage additional methylation. As more data is collected, weir operation may be adjusted to minimize impacts, reducing mercury input to the bypass (e.g., increasing trapping of mercury in the Cache Creek Settling Basin), reducing amounts of senescent vegetation in the bypass, and/or other mitigation measures. At this time, the collection of data is needed to identify the most effective means to control methylation of mercury.

Data will be submitted to the RWQCB in December 2019. For this project, DWR will work with the RWQCB to comply with the Board's issued permit.

Comment FA01-5

Comment

The State Water Resources Control Board recently adopted new mercury water quality objectives that apply to tribal and subsistence beneficial uses.¹ These uses are designated for the Delta, but the DEIS does not discuss the impacts that the proposed project actions could have on people who consume resident fish species in the Delta (Table 6-2, p. 6-5).

Footnote 1:

http://www.waterboards.ca.gov/water_issues/programs/mercury/docs/hg_prov_final.pdf

Response

While the State Water Resources Control Board has adopted the new beneficial uses, they have not yet been designated within the applicable water quality control plan. They are included as a footnote in Table 6-2. Chapter 6 also includes an analysis of the potential for methylmercury effects in the Delta. Currently, information is not sufficient to quantify changes in resident fish tissue concentrations; therefore, the analysis focuses on changes to methylmercury within the

Yolo Bypass and the potential to contribute to Delta methylmercury concentrations. CalSim II modeling completed for this project indicates small changes to water flow (less than 3 percent) during wet periods within the Delta.

As indicated in the EIS/EIR, impacts on methylmercury production are considered significant. Impacts are assumed to be significant based in large measure on the lack of data for more in-depth, quantitative analysis. Impacts cannot be quantified until additional data are collected and analyzed. The EIS/EIR includes requirements to monitor effects as a mitigation measure, but Reclamation and DWR were not able to identify additional measures that would effectively reduce the contribution for the action alternatives to the methylmercury issues within the Yolo Bypass.

Comment FA01-6

Comment

Recommendation:

- In the Final EIS, describe and commit to water column and fish and invertebrate tissue monitoring for mercury and methylmercury in the Yolo Bypass to support adaptive management actions and coordinate with ongoing monitoring for the Delta Regional Monitoring Program.

Response

See Responses to Comments FA01-4 and FA01-5. Fish and invertebrate tissue monitoring are likely to be useful to assessing impacts of implementing any of the project alternatives. Tissue monitoring is included as an option in Mitigation Measure MM-WQ-4; however, as discussed in the other comment responses, the detailed monitoring included will be adaptively managed during implementation to best compliment the Mercury TMDL implementation.

Comment FA01-7

Comment

- Include a discussion in the FEIS regarding any impacts that the project would likely have on attainment of the applicable subsistence fishing water quality objective in the Bay Delta.

Response

See Response to Comment FA01-5.

Comment FA01-8

Comment

Wetlands

As disclosed in the DEIS, some of the proposed project activities, such as construction of concrete abutments and rock-lined channels, could result in impacts to waters of the United States, which would require a permit issued by the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act. We note that the DEIS states that the Corps' Least Environmentally Damaging Practicable Alternative determination is expected to be attached to the FEIS (p. 23-11).

Recommendation:

- In the FEIS avoid, minimize, and mitigate impacts to aquatic resources to achieve compliance with the CWA Section 404(b)(1) Guidelines.
- Work with the Corps to obtain a formal jurisdictional delineation of waters of the U.S. in the project area and include, in the FEIS, a map of the delineated waters and the anticipated impacts to those waters, to streamline future Section 404 compliance efforts.

Response

Due to the large geographic scope and private ownership in many areas, it was not feasible to obtain access to the entire construction study area, and certainly not the entire operations study area to carry out a comprehensive formal delineation in either of these study areas. Therefore, the determination of potential waters of the U.S., including wetlands, subject to jurisdiction of the United States Army Corps of Engineers (USACE), was made based on vegetation community types, which is a standard approach when it is infeasible to access the entirety of a project's study area. This planning level determination presents the worst-case scenario of impacts to jurisdictional wetlands and waters of the U.S. and is a useful tool by which to compare potential impacts of the different alternatives. Furthermore, the level of accuracy is sufficient to carry out a landscape level analysis of effects to waters of the U.S. following the USEPA 404(b)(1) Guidelines. This planning level determination does not replace the need for a formal jurisdictional wetland delineation which would be conducted for the selected alternative prior to construction.

Comment FA01-9

Comment

- Conduct a formal and reproducible assessment of the aquatic resources and ecosystem functions in the project footprint, using a scientifically defensible method, such as the California Rapid Assessment Method (CRAM), and include the results in the FEIS.

Response

See Response to Comment FA01-8.

Comment FA01-10

Comment

Sediment

The document states that Alternative 1 is estimated to increase the total amount of sediment entering the Yolo Bypass to approximately 743,000 cubic yards on an average annual basis (an increase of about 13 percent) (p. 12-13). Currently, sediment removal operations occur in the bypass on an as-needed basis and this would change to "at least every five years and as-needed." Reuse of all the project's dredged material would support efforts to protect vital infrastructure from the effects of sea level rise and assist in restoring habitat. This would also be consistent with the regional interagency dredged material management plan (the San Francisco Bay Region Long Term Management Strategy, or LTMS), which strives to maximize beneficial reuse of dredged sediments and strictly limits annual in-Bay disposal volumes.

Recommendation:

In the FEIS, discuss the feasibility of practical reuse, including possible sites and partnerships, of the sediment material that would deposit in the Yolo Bypass as a result of the project.

Response

Several local landowners have expressed interest in receiving soil that is removed during construction and maintenance, but Reclamation and DWR cannot develop specific agreements until after the environmental compliance process is complete and they make decisions on how to proceed. Additional detail has been added to Chapter 2 to explain that Reclamation and DWR would seek opportunities for practical reuse, including partnerships with local landowners to receive the excess soils.

Comment FA01-11

Comment

Air Quality

Since the proposed project would be in an area that is designated as non-attainment for PM_{2.5} and attainment/maintenance for PM₁₀, and the initial analysis shows that there would be short-term degradation of air quality during construction, it is critically important that impacts to air quality be accurately analyzed, disclosed, and reduced as much as possible. According to the DEIS, Alternatives 1- 3 would have mitigated emissions below the National Ambient Air Quality Standards NO_x and PM₁₀ thresholds, but Alternatives 4-6 would have mitigated emissions above the de minimis thresholds due to their larger construction footprints.

Recommendations:

EPA encourages Reclamation to work with Yolo-Solano Air Quality Management District (AQMD) and Feather River AQMD to develop the Draft General Conformity Determination for the project and to identify additional mitigation measures that would be necessary. For all the Alternatives, consider the following, as appropriate, to reduce adverse effects during construction of the project:

- Solicit bids that include use of energy and fuel-efficient fleets;
- Solicit construction bids that use Best Available Control Technology, particularly those that would deploy zero-emission technologies;

- Employ the use of alternative fueled vehicles;
- Use lighting systems that are energy efficient, such as LED technology;
- Use the minimum amount of greenhouse gas (GHG)-emitting construction materials that is feasible;
- Use cement blended with the maximum feasible amount of alternative materials (industrial materials designated for re-use, for example) that reduce GHG emissions from cement production;
- Use lighter-colored pavement where feasible;
- Recycle construction debris to maximum extent feasible;
- Plant shade trees in or near construction projects where feasible; and
- Use grid-based electricity for construction activities and/or onsite renewable electricity generation, rather than diesel and/or gasoline powered generators.

Response

The general conformity regulation only requires a General Conformity Determination to be prepared for the preferred alternative (if the preferred alternative exceeds a general conformity de minimis threshold). As discussed in Chapter 2, *Description of Alternatives*, Alternative 1 is the CEQA and NEPA preferred alternative. Therefore, it will not be necessary to complete a General Conformity Determination because emissions of all criteria pollutants were less than the general conformity de minimis thresholds for Alternative 1. If Alternative 4, 5, or 6 were ultimately selected for implementation, a General Conformity Determination would be prepared prior to the issuance of the Record of Decision because they exceed de minimis thresholds. Regardless of which alternative is chosen, DWR and Reclamation intend to work with the local air quality districts to consider, as appropriate, measures to reduce adverse effects during construction of the project.

Comment FA01-12

Comment

Update Table 18-43 and Table 18-51 to indicate that total NO_x emissions for Alternative 5 would be above the de minimis threshold.

Response

These tables have been updated to correctly state that NO_x emissions would be significant. This does not change any conclusions or effects.

Comment Letter FA02, Carl Hausner, United States Coast Guard

Comment FA02-1

Comment

The proposed bridges for the subject project will not need Coast Guard Bridge Permits. I have determined the waterways, which the proposed bridges cross, are not considered navigable by Coast Guard Standards; therefore Coast Guard Bridge Permits are not required. Attached is documentation stating the Coast Guard Bridge Office will have no further involvement in this project as proposed. Please contact me if you have any questions.

Under the provisions of the Coast Guard Authorization Act of 1982, the Coast Guard has determined this project does not require Coast Guard involvement for bridge permit purposes.
Date 12/29/17 Signed by Carl T. Hausner

Response

Text has been revised in Section 24.2, Agency Coordination, to include the United States Coast Guard and to indicate that Coast Guard Bridge Permits are not required.

Comment Letter FA03, Zachary Simmons, United States Corps of Engineers

Comment FA03-1

Comment

Chapter 2.7.1, Page 2-46, Paragraph 2

The approximate length of the two bypass channels are identified as 2,500 feet and 3,000 feet. Paragraph 1 on page 2-49 identifies the southern bypass channel as 4,000 feet long. Which is correct?

Response

Text has been changed on page 2-46 to indicate that the northern channel is about 3,275 feet and the southern channel is approximately 4,180 feet. This does not change any conclusions or effects.

Comment FA03-2

Comment

Chapter 2.7.1, Page 2-46, Paragraph 2

The engineering and hydraulic impacts of the berms along the bypass channels should be coordinated with the Corps Engineering Division prior to the selection of any alternative that would construct berms within the bypass.

Response

The engineering design and hydraulic impacts associated with these berms will continue to be coordinated with the USACE through the Section 408 process.

Comment FA03-3**Comment**

Chapter 2.7.1.1, Page 2-46

I checked the length of the northern bypass channel as drawn in figure 2-14. The bypass channel measures over 4,000 feet.

Response

The northern bypass channel length is 2,500 feet, but there are also two transitions to connect to the Tule Canal that result in a total length of 3,275 feet. The text has been clarified.

Comment FA03-4**Comment**

Chapter 2.7.1.1, Page 2-48, Paragraph 1

The engineered embankment for the northern water control structure measure approximately 7,500 feet in Figure 2-14 while paragraph 1 on page 2-48 says it would be 12,000 linear feet. Does the 12,000 feet include the bypass channel?

Response

The text has been revised to include only the length of the engineered embankment, which is 7,200 feet. This change does not affect any conclusions or effects.

Comment FA03-5**Comment**

Chapter 2.7.1.1, Page 2-48, Paragraph 1

The impacts of the engineered armored embankment on the existing bypass levees and floodway must be assessed. What effect would the increased loading have on the levee? What does this look like compared to what it was design for and currently subjected to? How would these berms tie in to the existing levee? What other effects would this change in hydraulics have on the existing levee? The engineering and hydraulic impacts of the engineered embankment should be coordinated with the Corps Engineering Division prior to the selection of any alternative that would construct berms within the bypass.

Response

The Hydraulic Impact Analysis modeling (Appendix R) identified that the construction of the engineered embankments within the bypass did not have a distinguishable impact to the water surface elevation during flooding events. Because the new structures would not affect the water surface elevation, they would not increase loading on existing levees. An embankment would connect to the Water Control Structure and tie into the existing Yolo East bypass levee. An access road would be placed on top of the engineered embankments and water control structure with ramps that access the existing levee crown patrol road. The engineering design and hydraulic impacts associated with these berms will continue to be coordinated with the USACE through the Section 408 process. The Hydraulic Impact Analysis final report has been added as Appendix R to the Final EIS/EIR.

Comment FA03-6

Comment

Chapter 2.7.1.2, Page 2-49, Paragraph 2

See Comment #4 above.

Response

The text in Section 2.7.1.2 has been revised to reflect only the length of the engineered embankment at the southern water control structure, which is 37,870 feet.

Comment FA03-7

Comment

Chapter 2.7.1.2, Page 2-49

I checked the length of the southern bypass channel as drawn in figure 2-17. The bypass channel measures over 10,000 feet

Response

The text is correct that the channel should be about 4,000 feet; the length is closer to 4,180 feet when the connections to Tule Canal are included in the channel length. Figure 2-17 has been updated to reflect a bypass channel that is 4,180 feet long. The original designs included a longer channel (approximately 7,000 feet long). Shortening the channel to 4,000 feet does result in small changes to the construction equipment and workers, but does not affect the schedule. Because these changes are very small in comparison to the equipment and workers needed for the overall alternative (reducing equipment and workers needed by a small number for only a few weeks in the construction period), the evaluation of Alternative 4 continues to use the original design information. This change would not result in a change in the severity of environmental impacts or significance findings within this document.

Comment FA03-8**Comment**

Chapter 2.7.1.2, Page 2-49, Paragraph 1

The engineered embankment for the northern water control structure measure approximately 37,300 feet in Figure 2-14 while paragraph 1 on page 2-48 say's it would be 42,500 linear feet. Does the 42,500 feet include the bypass channel?

Response

This comment specifies the northern water control structures, but based on the context (and cited length), it is referring to the embankment associated with the southern water control structure. The text in Section 2.7.1.2 has been revised to reflect only the length of the engineered embankment at the southern water control structure, which is 37,870 feet.

Comment FA03-9**Comment**

Chapter 2.8.1.2, Page 2-55, Paragraph 1

What do you mean by a "100-foot-long headworks structure" that houses all four gates? The bullets that follow this paragraph go on to describe the four gate groups with widths at a minimum of 30 feet, 30 feet, 100 feet, and 110 feet when adding up the gated culverts.

Response

This sentence has been edited to say, "The headworks structure would house four sets of bottom-hinge control gates with varying invert elevations, as shown in Figure 2-19 and Figure 2-20."

Comment FA03-10**Comment**

Chapter 9.3.3.7.9, Page 9-186, Paragraph 3

The sentence in the middle of the paragraph says that "Alt 6 would have the lowest total acreage of impacts to USACE wetland waters". This statement is not supported by the data presented in Table 9-9. Alternatives 1, 2, 3, and 5 all have less impacts to wetlands. Alt 5 has the lowest total impact of 8.1 acres of wetlands. That is less than half of the 17.7 acres of impacts that would result under Alt 6. Even when compared only to the western notch alternatives, Alt 3 has 0.4 acre less impacts to wetlands.

Response

That sentence was removed from the document. The remainder of the paragraph comparing impacts of Alternative 6 to other alternatives has not changed and is still accurate.

Comment Letter FA04, Laverne Bill, Yocha Dehe Wintun Nation

Comment FA04-1

Comment

The Cultural Resources Department has reviewed the project and concluded that it is within our aboriginal territories of the Yocha Dehe Wintun Nation. Therefore, we have a cultural interest and authority in the proposed project area. Based on the information provided, the Tribe has concerns that the project could impact known archaeological/cultural sites. Yocha Dehe Wintun Nation highly recommends including cultural monitoring during the development or ground disturbance, including backhoe trenching & excavations.

Response

The EIS/EIR has identified the potential for effects to archaeological/cultural sites. DWR and Reclamation have conducted coordination with the tribes before and during the public review process. Both agencies have committed to continuing consultation with the tribes throughout the next steps and will comply with all requirements established by the National Historic Preservation Act. Coordination with the tribes has also been included in the EIS/EIR mitigation measures. Please note the requirements in the mitigation plan below.

The EIS/EIR has identified the need for additional field reconnaissance and monitoring during the development and ground disturbance. Mitigation Measures CULT-1 and CULT-22 identify the specific requirements. Additionally, Mitigation Measure MM-CULT-4 includes cultural awareness and tribal sensitivity training.

Mitigation Measure MM-CULT-1: Prepare a Treatment Plan and Perform Treatment to Address the Affected Resources Identified as Significant and Eligible for the National Register of Historic Places (NRHP) and/or California Register of Historical Resources (CRHR)

The Lead Agencies will prepare a treatment plan that provides measures for the management of identified “historic properties,” “historical resources,” and “unique archaeological resources” and potentially unevaluated cultural resources which cannot be avoided during Project-related ground-disturbances or other construction activities. The purpose of the treatment plan will be to establish a research design, methods, and guidelines for evaluations of unevaluated resources for potential listing on the NRHP and/or CRHR, and for mitigation of Project-related adverse effects and significant impacts to historic properties and historical resources located within the area of potential effects (APE). The treatment plan will also describe a process of consultation with appropriate state and federal agencies, as well as with Native Americans who may have interests in historic properties and historical resources within the APE.

Preservation in place, through methods such as redesign of relevant facilities to avoid destruction or damage to eligible cultural resources, capping resources with fill, or deeding resources into conservation easements, shall be the preferred method of mitigation where feasible. If these options are not feasible, the measures that are developed in the treatment plan will be followed.

Mitigation Measure MM-CULT-2: Conduct Inventory, Evaluation, and Treatment of Archaeological and Historic Built Environment Resources.

Prior to ground-disturbing construction, the Lead Agencies will implement the following mitigation measures:

- The Lead Agencies will ensure that a cultural resources inventory is conducted that encompasses the entirety of the APE.
- The Lead Agencies will ensure that the inventory scope of work is developed prior to any Project-related ground-disturbances and includes methods for pedestrian surveys, reviews of historic maps, documentation of identified resources, and other appropriate sampling methods. The survey methods, results, and recommendations will be detailed in a technical report of findings.
- For all identified resources, DWR and/or the appropriate Federal agencies will evaluate the resources to determine whether they are any of the following:
 - Historical resources [State CEQA Guidelines Section 15064.5(a)]
 - Unique archaeological resources under CEQA [California PRC Section 21083.2(g)]
 - Historic properties (36 Code of Federal Regulations [CFR] 60.4)
 - Resources eligible for other local registers as may be appropriate
- The results of the evaluations will be documented in an evaluation report that provides an assessment of CRHR and/or NRHP-eligible resources requiring treatment to mitigate adverse effects and significant impacts. The Lead Agencies will make such a determination if project construction would involve any of the following consequences:
 - Demolish or materially alter the qualities that make the resource eligible for listing in the CRHR [State CEQA Guidelines Section 15064.5(b)(2)(A)(C)]
 - Demolish or materially alter the qualities that justify the inclusion of the resource on a local register or its identification in a historical resources survey meeting the requirements of California Public Resources Code [PRC] Section 5024.1(g) unless the Lead Agencies establish by a preponderance of evidence that the resource is not historically or culturally significant [State CEQA Guidelines Section 15064.5(b)(2)(B)]
 - Alter, directly or indirectly, the qualities that make a resource eligible for listing in the NRHP [36 CFR 800.5(a)(1)]
 - Demolish or materially impair the qualities that allow a resource to qualify as a unique archaeological site (California PRC Section 21083.2)
- For all resources qualifying as unique archaeological resources, historical resources, or historic properties that would be subject to significant impacts, the Lead Agencies would develop and implement a treatment plan, as described above in Mitigation Measure MM-CULT-1.

State Agencies and State Elected Officials

Comment Letter SA01, Tina Bartlett, California Department of Fish and Wildlife

Comment SA01-1

Comment

The California Department of Fish and Wildlife (CDFW) received a Notice of Availability of a DEIR from California Department of Water Resources for the Project pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.¹

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

CDFW acknowledges and appreciates the effort that has been invested in developing this DEIR for the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project by the California Department of Water Resources and the United States Bureau of Reclamation. CDFW commends the project proponents on reaching this significant milestone, bringing this important restoration project one-step closer to implementation. CDFW supports the identified Preferred Alternative under CEQA, which strikes the best balance between providing benefits to fish species and impacts to other natural resources and land uses in the Yolo Bypass.

CDFW ROLE

CDFW is California's **Trustee Agency** for fish and wildlife resources, and holds those resources in trust by statute for all the people of the State. (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (Id., § 1802.) Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW is also submitting comments as a **Responsible Agency** under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), related authorization as provided by the Fish and Game Code will be required.

Footnote 1: CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Table 14 of the California Code of Regulations, commencing with section 15000.

Response

Reclamation and DWR are committed to working with CDFW throughout project implementation. DWR will secure necessary permits for the alternative selected for implementation.

Comment SA01-2

Comment

Proponent: U.S. Department of the Interior, Bureau of Reclamation (Reclamation) and the California Department of Water Resources (DWR)

Objective: The objective of the Project is to enhance floodplain rearing habitat and fish passage in the Yolo Bypass by implementing RPA action 1.6.1 and, in part, RPA action 1.7, 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.

The objective of RPA action 1.6.1 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 1.7 is to reduce migratory delays and loss offish 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.

Primary Project activities include the construction of a notch in Fremont Weir located in the Northern Yolo Bypass, including the construction of the following features:

Intake channel:

The intake channel would connect the Sacramento River to the proposed headworks structure at the appropriate elevation to facilitate an upstream fish passage facility for adult fish and for passing rearing habitat flows and juvenile salmonids.

Headworks structure:

The headworks structure would bisect the existing Fremont Weir at one of three locations (east, center, or west) and would control the diversion of Project flow from the Sacramento River into the Yolo Bypass. It would also serve as the primary upstream fish passage facility for adult fish and the primary facility for passing rearing habitat flows and juvenile salmonids into the Yolo Bypass. The components of the headworks would include a concrete control structure, an upstream vehicular bridge crossing, and a concrete channel transition, which transitions the rectangular sides of the control structure to the side channel slopes of the transport channel.

Transport channel:

The transport channel would serve as the primary facility for upstream adult fish passage between the existing Tule Pond and the headworks structure. It would also serve as the primary channel for conveying juvenile salmonids and rearing habitat flows from the headworks structure to the existing Tule Pond.

Downstream channel improvements:

Improvements would be made to the existing channel that extends from the Tule Pond outlet to the beginning of Tule Canal. The improvements would be made to facilitate upstream adult fish passage between the existing Tule Canal and Tule Pond

Under different alternatives, each of these facilities may be constructed in a different location as part of one of three different channel alignments (east, center, and west in the Fremont Weir) in the Yolo Bypass. Each alignment would terminate downstream into the existing Tule Pond. Each project alternative also includes a supplementary fish passage structure located in the opposite end of Fremont Weir from where the notch would be located.

Location: The project area includes the lower Sacramento River basin, including Yolo Bypass, in Sacramento, Solano, Sutter, and Yolo counties, California. Major water bodies and infrastructure located within the study area include the Sacramento River; Fremont, Sacramento, and Lisbon weirs; Knights Landing Ridge Cut (KLRC) and Wallace Weir; Cache and Putah creeks; Willow Slough Bypass; Tule Canal; and the Toe Drain. Yolo Bypass is a flood bypass along the Sacramento River located in Yolo, Solano, and Sutter counties. The bypass separates the California cities of Sacramento and Davis. Flood inflow to the bypass primarily occurs through the Fremont Weir. Fremont Weir is one of five weirs along the Sacramento River.

Major infrastructure in Yolo Bypass relevant to the Project includes:

- Fremont Weir - Fremont Weir allows relief from the Sacramento River in times of high flood stage to divert water around the City of Sacramento within Yolo Bypass.
- Sacramento Weir - Sacramento Weir is located along the right bank of the Sacramento River approximately two miles upstream from the mouth of the American River. Its primary

purpose is to protect the City of Sacramento from excessive flood stages in the Sacramento River channel downstream of the American River.

- Agricultural Road Crossing 1 - Agricultural Road Crossing 1, which is the northernmost agricultural road crossing in Tule Canal at the southeastern corner of the Fremont Weir Wildlife Area (FWWA), serves as a vehicular crossing and a water delivery feature.
- Tule Pond - Tule Pond is an approximately 15-acre perennial pond in Yolo Bypass located about 13 miles north of Interstate (1-80). It is likely the pond is sustained by multiple sources, including impounded floodwater, leakage from an agricultural canal at its southern end, and groundwater.
- Tule Canal - Tule Canal is a channel along the east side of Yolo Bypass, which begins south of Tule Pond. Tule Canal receives water from west side tributaries and agricultural diversions almost year-round. Tule Canal also drains the initial flows from the Sacramento River when the river rises above the crest of Fremont Weir.
- Toe Drain - Tule Canal becomes the Toe Drain south of the 1-80 Yolo Causeway. The perennially wetted Toe Drain extends south approximately 20 miles and becomes increasingly tidal as it connects with Cache Slough, past Lower Yolo Bypass.
- Lisbon Weir - Lisbon Weir is the southernmost water-control structure that crosses the Toe Drain. Lisbon Weir provides higher and more stable water levels to water users north of the weir

Figure 1-1 shows the study area location:

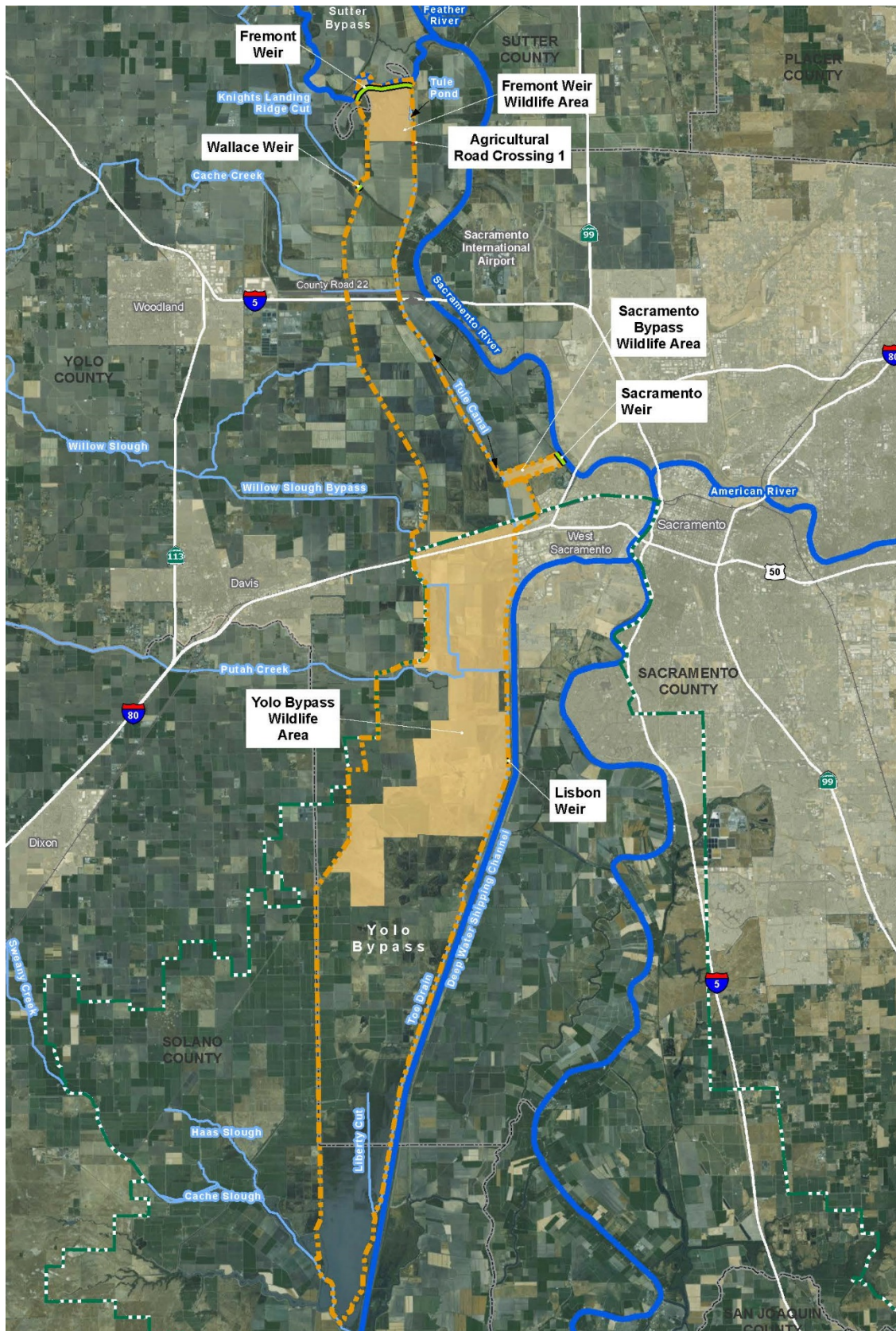


Figure 1-1. Project Area

Timeframe: Construction is projected to start in 2020 or 2021, and is estimated to last 28 weeks. All project components are expected to be completed in one construction season during times that are outside the flood period (construction from April 15 through November 1). Construction would occur 6 days per week, 10 hours per day between 7 a.m. and 6 pm.

Response

This comment includes an accurate summary of the purpose of the project, location, and timeframe.

Comment SA01-3

Comment

Overall, CDFW finds the DEIR to be a thorough and well-organized document. A table with section-specific and editorial comments is attached to this letter. Below are several overarching comments regarding impacts to fish and wildlife resources, education and recreation in the Draft document.

Response

Responses have been provided to all detailed comments in the submitted comment letter.

Comment SA01-4

Comment

The DEIR describes potential impacts to all three CDFW managed wildlife areas (Fremont Weir Wildlife Area (FWWA), Sacramento Bypass Wildlife Area (SBWA) and Yolo Bypass Wildlife Area (YBWA)) in the Yolo Bypass. CDFW suggests editing these sections of Chapter 13 to further improve the analysis of impacts to recreation and education. Unless stated otherwise, the following comments on Chapter 13 pertain to each of the six alternatives.

CDFW recommends that impacts to recreation be analyzed under CEQA, and that impacts to the Department's three wildlife areas in Yolo Bypass be analyzed and described in greater detail with the addition of mitigation measures to offset anticipated impacts. For each of the alternatives the following statements regarding CEQA analysis for recreation and education are made:

"Loss of lands available for recreation is considered a social effect and is addressed subject to NEPA, whereas CEQA focuses on the physical changes to the environment. This discussion will address the social impacts and not make a CEQA finding of significance" or "Access for recreation is considered a social effect and is addressed subject to NEPA, whereas CEQA focuses on the physical changes to the environment. This discussion will, therefore, address the social impacts and not make a CEQA finding of significance."

"Access to lands available for educational opportunities is considered a social effect and is addressed subject to NEPA, whereas CEQA focuses on the physical changes to the

environment. Therefore, this discussion will address the social impacts and not make a CEQA finding of significance."

CDFW suggests making the following change to the CEQA analysis of recreational and educational impacts to better explain how physical changes as a result of the Project will result in impacts to recreation and education:

"CEQA focuses on the physical changes to the environment and a social or economic change related to a physical change may be considered in determining whether the physical change is significant. (CEQA Guidelines § 15382)."

As described in the DEIR, implementing any of the Project alternatives will result in construction related impacts and/or increased inundation at all three wildlife areas, and as such, project implementation constitute a physical change to the environment, impacting recreation and management activities at all three wildlife areas, and educational opportunities at the YBWA, thereby requiring an analysis under CEQA.

Response

A number of commenters raised questions about the impact analyses related hunting, wildlife viewing and educational opportunities at the three CDFW-managed wildlife areas -- Fremont Weir Wildlife Area (FWWA), Sacramento Bypass Wildlife Area (SBWA) and Yolo Bypass Wildlife Area (YBWA) in the Yolo Bypass. Many of these comments overlap and/or are related and are discussed comprehensively in the following response by type of comment.

Analyze Impact to Recreation under CEQA and Develop Mitigation Measures to Offset Impacts.

Please note that only if economic or social impacts cause a physical change resulting in an adverse effect on the environment would an EIR potentially need to discuss the economic or social impacts that caused the environmental effect (CEQA Guidelines §15382.). The educational and recreation activities that the commenter identifies would not cause a physical change resulting in a significant environmental effect. Thus, CEQA does not require an analysis of those impacts. Although not required, the recreational analysis in Chapter 13 has been updated to include a CEQA impact statement and conclusion for the loss of recreational opportunities due to a reduction in access and/or lands available for education, wildlife viewing, and hunting. However, when compared to the CEQA thresholds of significance (see Chapter 13, Section 13.3.2 for these thresholds), these impacts would be less than significant and would not require mitigation measures. However, the EIS/EIR does include mitigation measures to address short-term construction-related impacts at FWWA, including coordination with the CDFW during the construction of an alternative to minimize impacts to recreational uses at FWWA.

Although the impacts to recreational and educational uses are less than significant under CEQA and do not require mitigation, the EIS/EIR has been updated to include NEPA-only mitigation measures to address the adverse social impacts to recreational and educational uses. These include: 1) developing alternative recreational access points on the west/southwest side of YBWA; 2) drainage-related improvements within or adjacent to YBWA that would improve flood event drainage time on the descending limb of the hydrograph; and 3) developing viewing platforms or areas at SBWA. These NEPA mitigation measures minimize the impacts due to the reduction in hunting, wildlife viewing and education opportunities as part of the operation of each alternative.

Expand Analyses of the Recreation Impacts for Hunting, Wildlife Viewing and Educational Opportunities to All Water Year Types. The analysis of the reduction in hunting, wildlife viewing, and education days has been updated to include all the water years on the period of record for each respective season in addition to the average for all water years. The text has also been updated to reflect the range of days (minimum and maximum) across all water years in addition to the average number of days. Further, Appendix I was added to the EIS/EIR, which provides detailed summary of the number of days the YBWA would be partially closed and completely closed due to inundation based on the Lisbon Weir elevation for each alternative for each water year (1997-2012) and each month (October-May).

Analyze Impacts for the Peak Seasons for Hunting, Wildlife Viewing and Educational Uses. The recreation analysis has been updated to include the peak seasons for the key recreational uses, including November through February for wildlife viewing at YBWA; late October through January for hunting in YBWA; and October through May for educational uses. Further, as described above, the impact analysis was also updated to include tables showing the days closed for all the water year types modeled and not just the average across the entire period modeled.

Impacts to Hunting, Wildlife Viewing and Educational Uses are Underestimated Because Drainage and Drying Times are Not Included in the Analysis. The modeling analysis is conducted by comparing different alternatives using the same bases for the model. The changes identified from the modeling are used to compare and contrast the changed conditions. For this EIS/EIR, the hydrologic model incorporates delivery and drainage features within the bypass. This model simulates the increased inundation and identifies the end of inundation by property when it is at least 70 percent dry on the surface. The analysis in Chapter 13 considers the difference in inundation period between existing conditions and each action alternative to identify potential impacts to recreation. Further, the drying time is highly variable from site-to-site and largely dependent upon variable weather conditions once drying begins, which are too variable and unknown for this level of analysis. The localized drying times for individual properties, particularly individual private hunting clubs would not change the difference between an action alternative and existing conditions (because it would be the same under both conditions); therefore, it does not affect the potential impact identified. As it relates to individual private hunting clubs, the club properties may require additional time to drain ponds down to shooting levels, this additional time would not be different than the time required under existing conditions.

Comment SA01-5

Comment

Specific suggestions on how to better characterize and analyze recreation impacts, including impacts to education activities at YBWA, are described in the "Recreation and Education Impacts" subsection below. CDFW recommends adopting the proposed changes to the analysis of impacts and adding appropriate mitigation measures in the final EIR/EIS.

Fremont Weir Wildlife Area

Please see the attached comment table for specific comments regarding impacts to the FWWA.

Sacramento Bypass Wildlife Area

CDFW manages SBWA for upland wildlife and it primarily serves upland game hunters as well as non-hunting recreation. Upland vegetation is rare in the Sacramento River system and loss of this habitat type would impact both wildlife and recreational use. Increased inundation could alter vegetation and diminish the habitat quality for upland game. For example, increases in wetland habitat created by increased and prolonged inundation adds little value to wildlife area users and waterfowl. Because this habitat is not managed as a wetland, wetland duck use will be low and hunter success and use will be low. As a result, increased inundation of over 84% of the SBWA is a significant impact. CDFW suggests adding mitigation measures to the DEIR to reduce the impact to less than significant. Examples of appropriate mitigation could include an upland game hunting lease on another nearby DWR property and funding to support improved vegetation management on the SBWA.

Response

Overall, 84 percent of SBWA would be inundated for a longer duration under Alternative 1. However, the duration of increased inundation varies throughout SBWA with 17 percent of the lands experiencing less than one day to one week of increased inundation; 42 percent between one and two weeks; and 22 percent for two to three weeks. Thus, while inundation duration will increase, the impact is mostly from less than one day up to two weeks across the majority of the 84 percent of lands that would be inundated longer. This is not considered significant. Please also see Master Response 4: Impacts to Landowners and Other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment SA01-6

Comment

Yolo Bypass Wildlife Area

Closures within the wildlife area:

Increases in the duration of inundation as a result of Project operations will reduce access to substantial portions of the YBWA and result in increased land management costs. While limited access to portions of the YBWA may be available after floodwater recedes, access can be significantly limited until roads are sufficiently dry to support vehicles. Furthermore, infrastructure in YBWA needs to be re-established after each flooding (installation of hunting blinds, signs, porta-potties etc. and repairs of roads and parking lots), further delaying opening of the wildlife area. Depending on the magnitude and duration of flooding, weather, and time of year, opening of the wildlife area can be delayed for up to 10-14 days after Fremont Weir stops spilling.

Response

See Response to Comment SA01-4.

Comment SA01-7**Comment**Impacts to waterfowl hunting:

Calculations used in the DEIR to quantify impacts to waterfowl hunting are discussed in Chapter 13, page 27, Table 13-4 and impacts to managed wetlands are discussed in the 'Managed Annual Wetland Vegetation' section in Chapter 9, page 11. Impacts to managed wetlands as a result of increasing depth, flow and duration of inundation are also described in Chapter 13, page 28 (Alternative 1).

We suggest considering impacts to current management actions at the YBWA as a result of Project operations. About 4500 acres of the YBWA are managed wetlands open to waterfowl hunting, and the majority of these managed wetlands are located in areas that will be most impacted by increased inundation during Project operations. Each year, the waterfowl hunting season lasts approximately 100 days and waterfowl hunting on the YBWA is restricted to three days a week throughout the waterfowl hunting season, resulting in about 45-47 hunt days per year if Yolo Bypass is not flooded. Impacts to available waterfowl hunting days should be estimated by comparing changes to the number of days the YBWA is open for waterfowl hunting each year, not by comparing changes to the full calendar year.

On average, over the past 10 years, YBWA waterfowl hunters have lost five hunting days per year due to flooding. As described above under closures of the YBWA, the YBWA area cannot be opened immediately after an inundation event, as the YBWA infrastructure needs to be reestablished before hunters can access the land.

Response

The analysis has been updated to reduce the hunting season to 45-47 days. However, the analysis has also proportionately adjusted the number of hunting closure days. In other words, the hunting days were reduced to 47 percent of the 100-day hunting period and the number of additional lost days to hunting was also adjusted by 47 percent to proportionately reflect the adjusted hunting period.

Comment SA01-8**Comment**

As correctly stated, CDFW has a special interest in managed wetlands and their vegetation communities as part of waterfowl and shorebird management at YBWA. We suggest developing a more detailed impact analysis and associated mitigation measures for YBWA in coordination with CDFW in order to avoid or substantially lessen any significant impact of the Project. The largest increase in duration of inundation for all alternatives evaluated in the DEIR will impact the most important waterfowl hunting areas on YBWA (Figures 13-6, 13-18 and 13-30). For example, Project operations could inundate 2,263.1 acres, or 13 percent of YBWA lands, under Alternatives 1-3 (Chapter 13, page 27).

Response

See Response to Comment SA01-4 and Master Response 4: Impacts to Landowners and other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment SA01-9

Comment

Farm leases

Increased inundation as a result of Project operations is likely to result in changes to vegetation types on the YBWA. Increased flooding is likely to encourage cocklebur and star thistle growth on grazing lands, thereby impacting YBWA revenue from grazing leases. We suggest analyzing the reduction in grazing lease payments as a result of Project operations.

Response

As discussed in Chapter 16, proposed action alternatives could affect crop yields in the bypass and could reduce crop profitability but are not expected to permanently convert croplands to non-agricultural use in the bypass. Therefore, leases within the YBWA would be able to continue. However, lessors may pay less if the yield is consistently less from these parcels. The yield could be less through two mechanisms: longer inundation could reduce productivity directly or could encourage growth of invasive species (on pasture). The Bypass Production Model (BPM) analyzes the direct impacts on productivity throughout the Yolo Bypass for the action alternatives. The YBWA is within regions 5 and 6 from the BPM, but those regions include substantially more land than just the YBWA. Even with the larger area, the inundation-related impacts to agriculture (including both rice and pasture, the crops that occur in this area) within each region is relatively small (less than about \$16,000 average annually for Alternative 1, and less than about \$27,000 average annually for Alternative 6). See Appendix K1 (formerly Appendix J1) for more information. Only a portion of these impacts would be within the YBWA, and only a portion would be associated with the crop types (rice and pasture) that are a concern. The effects to leases within the YBWA would be very minor.

Chapter 16 includes a qualitative discussion of how grazing leases could be impacted under the action alternative because of invasive species. A detailed cost analysis was not conducted on this impact due to the limited information available on the leases.

See also Master Response 4: Impacts to Landowners and other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment SA01-10

Comment

Additionally, as described in the Yolo Bypass Production Model (Appendix J1), the Project will likely impact rice farming in the Yolo Bypass compared to existing conditions. We suggest

identifying appropriate mitigation measures for loss or reduction of farming leases at YBWA in the EIR.

Response

As discussed in Chapter 16, increased inundation could reduce crop yields that lead to crop shifting. However increased inundation is not expected to permanently convert croplands to non agricultural use and therefore a mitigation measure has not been proposed for this action.

Permanent cropland conversion under Alternative 4 from construction of project components does include a mitigation measure as discussed in Chapter 11 (see Mitigation Measure AG-1). See also Response to Comment SA01-9 and Master Response 4: Impacts to Landowners and Other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment SA01-11

Comment

Education

These comments pertain to the following portions of Chapter 13 for all alternatives:

- Effects on Available Lands for Recreation Opportunities at Established Wildlife Area
- Closure of Well-Established Wildlife Areas
- Conflict with the YBWA LMP by Affecting Access for the Educational Uses of the YBWA
- Specific calculations of education impacts for all alternatives (for example Chapter 13, page 37)

Increased inundation as a result of Project operations under all alternatives will increase the number of days that the YBWA is closed due to flooding and subsequent infrastructure installation and repairs. As is the case with the evaluation of impacts to waterfowl hunting, CDFW suggests revising the description of baseline conditions and impacts to the education program at YBWA, and analyzing the need for mitigation under CEQA.

To better evaluate impacts to the YBWA education program, CDFW suggests establishing more precise estimates of available education days under existing conditions and Project operations. An appropriate method to establish baseline conditions would be to subtract the average number of days that the YBWA is closed due to flooding (days of flooding+ drainage time+ time to re-establish infrastructure as described above) under existing conditions from the average number of school days in a year. This will likely result in substantially fewer days available for the education program than the 37 weeks currently used as baseline. To further highlight the impact of a reduction in education days it should be noted that the education program at the YBWA has a significant number of schools on the waiting list to attend the program each year. Finally, an increase in closures of the YBWA conflicts with the YBWA Land Management Plan, which includes expanding public use of the YBWA: "Public-Use Goal 2 (PU-2): Support and expanded

public use of the Yolo Bypass Wildlife Area for environmental education and interpretation." Yolo Bypass Wildlife Area Management Plan, page 5-36.

Response

The text for each alternative under the Conflict with the YBWA LMP by Affecting Access for the Educational Uses of the YBWA section already discusses this potential impact. The text has been updated to specifically reference Public-Use Goal 2 under each alternative. Regarding analyzing the need for mitigation under CEQA, see Response to Comment SA01-4.

Comment SA01-12

Comment

Examples of potential mitigation measures:

CDFW suggests that Project proponents, in coordination with CDFW, add appropriate mitigation measures to reduce impacts to the YBWA to a level of less than significant.

Mitigation measures to offset the impacts described above could include the following:

- Infrastructure improvements (e.g. parking lots, road improvements, duck blinds, signage and installation of gates)

Response

See Response to Comment SA01-4.

Comment SA01-13

Comment

- Mitigation for impacts to managed wetlands and subsequent impacts to waterfowl management and hunting, education program, and increased management costs through land acquisition outside of the Yolo Bypass and support for long term management

Response

See Response to Comment SA01-4.

Comment SA01-14

Comment

- Implementation of projects (as they relate to the YBWA) identified in the Yolo Bypass Drainage and Water Infrastructure Study that are not currently being pursued

Response

See Response to Comment SA01-4.

Comment SA01-15**Comment****Giant Garter Snake**

CDFW appreciates the analysis of impacts to giant garter snake (GGS) and the analysis of project impacts to the species from both Project construction and operations. Impacts to GGS will likely increase as a result of Project operations for all alternatives as a result of increases in the inundation of the Yolo Bypass, however the exact magnitude or extent of that impact is currently unknown. For most of the alternatives, the Water Surface Index (WSI) increase is less than one foot in depth. That in and of itself does not preclude the species from remaining on the site. However, the increase in the number of inundation days better characterizes potential impacts to GGS. CDFW suggests including a table at the end of Chapter 9 or in Appendix A that quantifies the change in the number of Yolo Bypass inundation days (wet days) and acres of increased inundation of GGS upland habitat that occurs as a result of each respective alternative compared to existing conditions. This table will allow for an easier evaluation of Project operations impacts to GGS. In addition, CDFW suggests analyzing and describing potential impacts from Project operations to the GGS mitigation bank at Pope Ranch (south of YBWA).

Response

As indicated in Chapter 9, operations impacts to giant garter snake are considered less than significant for all project alternatives. The modeling shown in Appendix H5 was used to determine the relative magnitude of impacts among the different project alternatives.

While repeated deep, high flow rate flooding is apparently incompatible with giant gartersnake occurrence (Halstead et al 2015), the proposed project alternatives result in temporally and spatially variable shallow and low velocity flooding. This minimizes the temporary destruction of underground retreats (Natomas Basin HCP – Conservation Plan). The locations of inundations change from year to year, resulting in different areas being inundated such that refugia remain available in any given year. See Appendix H5 Figures 18 and 35, which indicate that in wet years, the changes in flooded area are minimal. In dry years such as in 2012, depicted in Appendix H5 Figures 24 and 41, changes in flooded area are greater, but generally fall within the same areas that flood during larger events.

In fact, there is no change in flooding in the areas identified as potential overwintering habitat in the Yolo Bypass Conservancy modeling. Overall, the modelled overwintering habitat exhibits changes in the length of inundation in only 4 out of 16 years. Additionally, GGS will take refuge in riprap; therefore, the bypass channel will provide upland refugia along its upper banks. The average change in wet days at the Pope Ranch Conservation Bank ranges from no change to up to one week increased inundation (See Figures 13-6, 13-18, and 13-30 in Chapter 13, *Recreation*).

Appendix B to Comment Letter NG04 from the Yolo Habitat Conservancy identified the giant garter snake amount species that it is working to protect within the HCP/NCCP that have habitat within the Yolo Bypass and that may be affected by the proposed project. The comment letter also identified priority lands for the HCP/NCCP that are located within the Yolo Bypass. When comparing the average change in wet days for the different alternatives specifically in the areas designated as modeled giant garter snake habitat in Attachment B to the Yolo Habitat Conservancy (Provenza) letter (NG04), areas designated as rice habitat varied from no change in number of wet days in some areas to up to 2 weeks in others (Alternatives 1 through 3 and 5), no change up to 3 weeks (Alternative 6), and no change up to 4 weeks (Alternative 5). Areas designated as freshwater emergent wetland varied from no change in wet days in some areas to up to 2 weeks in others (Alternatives 1 through 3 and 5), no change up to 4 weeks (Alternatives 4 and 6), and Alternative 4 also had some areas that had 1 day to up to 2 weeks fewer wet days. Areas designated as overwintering habitat varied from no change in wet days in some areas to up to 2 weeks in others for all Alternatives. These changes are within the ranges of what has been described for each alternative in Chapter 9.

Comment SA01-16

Comment

Swainson's Hawk

CDFW suggests analyzing impacts to Swainson's hawk (SWHA) separately from other nesting birds in Chapter 9. Specifically, CDFW recommends that the existing analysis be expanded to include a more detailed discussion of potential impacts to Swainson's hawk foraging habitat (Section 9.3.3.2.5, Impact TERR-5: Potential Disturbance or Mortality of Nesting Bird Species and Loss of Suitable Nesting and Foraging Habitat) relative to the timing of inundation as a result of Project operations and the initiation of the SWHA nesting season on March 15th. Furthermore, an analysis of potential operations impacts to the Swainson's hawk mitigation bank on Pope Ranch (South of the YBWA) should also be included in Impact TERR-5.

Response

Potential loss of foraging and/or nesting habitat for species including Swainson's hawk was analyzed based on the change in average number of wet days resulting from each project alternative. As visible in modeling results over a 16-year period (Figures 26-41 Appendix H5 of the EIS/EIR), many years (37 percent) exhibited little or no change in last wet day (as an indicator of inundation length), several years (19 percent) exhibited delays in the last wet day (suggesting increased inundation duration) but confined to areas that would have been inundated regardless of the project and the remaining 44 percent exhibit additional inundation. The spatial distribution of the additional flooding areas is also variable. Small mammals are the main component of Swainson's hawk and northern harrier diet during the breeding season. Given that small mammal populations recover relatively quickly (approximately one year) after flooding, the anticipated variation in temporal and spatial inundation patterns allow for prey population recovery between inundation events. Additionally, white-tailed kite, Swainson's hawk and loggerhead shrike can take advantage of a wide variety of prey including insects, amphibians, reptile, birds and small mammals.

Finally according to the Yolo Bypass Management Plan, CDFW will drain wetlands as close as possible to April 1. The operations of the Project include closing the bypass gates by March 7 or March 15, depending upon the alternative. Therefore, the project is not expected to increase production of invasive weeds or decrease production of favored waterfowl foods. The EIS/EIR has adequately assessed the effects including disclosure of the significance of the effects under CEQA.

Suitable foraging habitat for Swainson's hawk consists of alfalfa, disced fields, fallow fields, dry-land pasture, beets, irrigated pasture, grains, other row crops, and uncultivated grasslands in addition to tomatoes. As depicted in Table 3 of Appendix K1 (formerly Appendix J1), the area of land in tomato production varies considerably between years and on average makes up less than 9 percent of active agriculture in the area. This analysis also does not include fallow lands which may also be used by Swainson's hawk for foraging as indicated above.

Comment SA01-17

Comment

Fremont Weir West Side Fish Passage

Fish stranding on the west side of Fremont Weir and in the Oxbow Pond located immediately south of Rattlesnake Island is well documented. CDFW appreciates that the Preferred Alternative includes a tertiary fish passage structure on the west side of Fremont Weir (west of Rattlesnake Island) to reduce fish stranding in this areas. CDFW recommends that the tertiary fish passage structure be connected to the Oxbow Pond to minimize fish stranding issues, and particularly sturgeon stranding. CDFW anticipates that the combination of a notch located on the east side of Fremont Weir in combination with a centrally located fish way and a tertiary fish way on the west side of Fremont Weir, which is connected to the Oxbow Pond, will significantly reduce fish stranding in the Northern Yolo Bypass.

Response

After implementation of an action alternative, Reclamation and DWR expect fish behavior in the Yolo Bypass to change. Fish would be more attracted to the higher flows through the new gated notch facilities and may not be stranded in the same locations. For the alternatives in the eastern or central locations (Alternatives 1, 2, and 5), fish would be less likely to move to the western side of Fremont Weir and be stranded in the Oxbow Pond. Alternatives 3, 4, and 6 would have the main fish passage facility on the west side, and the new gated notch would provide improved fish passage capability that would further reduce the potential for stranding.

Reclamation and DWR would continue to monitor fish stranding within the Yolo Bypass, as outlined in Appendix C, *Adaptive Management Biological Objectives*. If monitoring identifies that stranding continues to be an issue on the west side or in the Oxbow Pond, Reclamation and DWR would consider adaptive management actions based on the framework in Appendix C.

Comment SA01-18

Comment

However, if fish stranding is not significantly reduced during Project operations, additional appropriate actions should be taken, at a minimum as described in the adaptive management and monitoring plan, Appendix C, page 8:

"Operate Fremont Weir fish passage structures to increase volitional passage window following end of overlapping. Re-operate Knights Landing Ridge Cut to reduce Wallace Weir attractions flows."

"For adult salmon, re-operate Fremont Weir fish passage facilities when sufficient depths are expected over a sufficient duration. Regrade Fremont Weir apron so it drains towards fish passage structures. Improve coordinated operations of the primary, modified adult, and tertiary fish passage structures."

Finally, CDFW emphasizes the importance of solving issues with stranding of Acipenserids throughout the Yolo Bypass, but especially in the Tule Pond and the Oxbow Pond, should Project operations not significantly reduce current levels of stranding.

Response

Appendix C describes potential options that would be considered during the adaptive management process, but these should not be construed as commitments. Before taking any actions under the adaptive management program, Reclamation and DWR would consider if the impacts of that action would fall within the impacts described in this EIS/EIR, or if the action would have the potential to result in impacts that are not yet analyzed. If an action would result in impacts that have not already been disclosed, then Reclamation and DWR would comply with legal requirements regarding supplemental environmental review before action would be taken.

Comment SA01-19

Comment

Salmonid Passage at Sacramento Bypass

While CDFW expects the Project to significantly reduce stranding of migrating adult fish in the Yolo Bypass, CDFW recognizes the potential of increased Sacramento River flows through the Yolo Bypass leading to increased attraction of adult migrating salmonids, including fish originating from Sacramento River tributaries such as the American River, Feather River and Butte Creek. Should fish from the above mentioned tributaries enter the Yolo Bypass and consequently return to Sacramento River at Fremont Weir, they would re-enter the Sacramento River upstream of their native tributaries. This would reduce the likelihood of those fish returning to their native streams to spawn, while potentially increasing spawning by out of basin salmonids in the Sacramento River.

CDFW therefore supports the proposed adaptive management actions described in Appendix C, pages 2 and 8:

"The Project will be adaptively managed to ensure that biological goals and objectives are met and in turn will address impacts and the uncertainties of future impacts"

"Evaluate if creating a connection to the Sacramento River from Wallace Weir may reduce impact of Wallace Weir stranding on ESU escapement."

"Evaluation potential for /ow-flow salmon fish ladder in Sacramento Weir to reduce adult stranding. For juvenile salmon, improve connectivity between stranding areas, fill in stranding locations."

If monitoring efforts reveal increased straying rates of salmonids from the above mentioned rivers, CDFW recommends mitigating this problem by providing passage for salmonids back to the Sacramento River through Sacramento Weir.

Response

Providing passage for salmonids to the Sacramento River via the Sacramento Weir when necessary and practicable, based on future monitoring and technical feasibility, is an action the Adaptive Management Plan will consider.

Comment SA01-20

Comment

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database, which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDDB). The CNDDDB field survey form can be found at the following link:

http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/CNDDDB_FieldSurveyForm.pdf. The completed form can be mailed electronically to CNDDDB at the following email address:

CNDDDB@wildlife.ca.gov. The types of information reported to CNDDDB can be found at the following link: [http://www.dfg.ca.gov/biogeodata/cnddb/plants and animals.asp](http://www.dfg.ca.gov/biogeodata/cnddb/plants_and_animals.asp).

Response

Mitigation Measure MM-TERR-4: Implement General Wildlife Protection Measures includes a requirement to submit pre-construction survey findings to CNDDDB.

Comment SA01-21

Comment

FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

CONCLUSION

CDFW appreciates the opportunity to comment on the DEIR to assist DWR in identifying and mitigating Project impacts on biological resources.

Questions regarding this letter or further coordination should be directed to Brooke Jacobs Environmental Program Manager 1 at (916) 445-5313 or Brooke.Jacobs@wildlife.ca.gov.

Response

DWR recognizes its responsibility as the State Lead Agency to pay the necessary filing fees at the time the Final EIS/EIR is published and the Notice of Determination is filed.

Comment SA01-22

Comment

Comment 1, Section 3.3-3, PDF Page 219, Print Page #112

Under "Beneficial Effects of Maintenance Activities on Special-Status Fish", there is mention of the Knights Landing Outfall Gates (KLOG) currently having a fish barrier in place to prevent fish from "taking a dead-end path during upstream migration". The fish screens on KLOG are not currently in place due to a malfunction that occurred in September 2016.

Solution/Suggested Fix

CDFW suggests adjusting language to clarify that the fish screens on KLOG are not currently operational.

Response

The commenter appears to be responding to text quoted in DWR's 2017 "Environmental Permitting for Operation and Maintenance Draft EIR," located online at <http://wdl.water.ca.gov/floodmgmt/fmo/docs/EPOM-DEIR-January2016.pdf>. This is not a comment on the Yolo Bypass EIS/EIR, but information has been added to the discussion of cumulative projects in Table 3-1. The new text indicates that the fish screens on the Knights Landing Outfall Gates were not operational at the time of release of the Draft EIS/EIR.

Comment SA01-23**Comment**

Comment 2, Section 8.3.3.6.2, PDF Page 224, Print Page #16

For impact FISH-15, it states that there could be potential for the increased flows entering the delta from more frequent bypass inundation to attract more fish into the bypass. This impact should be considered for all alternatives regarding impacts to fish species due to changes in adult fish passage conditions. Also, depending on when flows in the bypass begin entering the delta, there is the potential for out of basin fish to enter the upper Sacramento River and its tributaries.

Solution/Suggested Fix

CDFW suggests adding language to all other alternatives regarding this impact and include language about potential for more frequent ingress of out of basin genetics into the upper Sacramento River.

Response

Text has been added to address potential adult attraction and genetics for all alternatives.

Comment SA01-24**Comment**

Comment 3, CEQA conclusions for Impact 15 of all alternatives

The CEQA conclusion for impact 15 states that spawning success is expected to increase.

CDFW agrees that reducing stranding and passage delays for adult migrating fish in the Yolo Bypass will allow those fish to continue their spawning migration, and that this would be a significant improvement over existing conditions. However, spawning success would mean that pairs of fish are completing the task of spawning successfully, meaning that eggs are fertilized and deposited in the gravel.

Providing more frequent passage through the bypass would likely ensure that more fish are able to reach spawning grounds more so than current conditions allow, and that they are provided more opportunities to spawn, but more fish being given the opportunity to spawn does not necessarily ensure successful spawning.

Solution/Suggested Fix

CDFW suggests adjusting language to say that spawning “opportunities” are expected to increase as a result of the project.

Response

Text has been added to state spawning "opportunities" are expected to increase as a result of the project.

Comment SA01-25

Comment

Comment 4, Section 8.1.4.4, PDF Page 46

There is mention of the installation of the temporary fyke trap downstream of Wallace Weir for the 2014 season only. The fyke trap has been installed every year since 2014 somewhere downstream of Wallace. The trap is usually installed during the fall and taken out during the late spring/early summer. Efforts have been compromised every season due to high flows in the canal.

Solution/Suggested Fix

Please add language describing seasonal return of fyke trap efforts.

Response

Text has been added to describe seasonal installation of the fyke trap downstream of Wallace Weir since 2014.

Comment SA01-26

Comment

Comment 5, Section 2, PDF Page 30

During project implementation, DWR and Reclamation would monitor fish activity

Solution/Suggested Fix

CDFW suggest changing language to "During project implementation, DWR and Reclamation would monitor fish activity in close coordination with CDFW"

Response

Text has been added to clarify that monitoring would be conducted in close coordination with CDFW.

Comment SA01-27

Comment

Comment 6, Section 8, PDF Page 73

Juvenile steelhead are not as likely to utilize floodplain habitat in the Yolo Bypass to the extent of juvenile Chinook salmon and are not frequently caught in the Yolo Bypass.

Solution/Suggested Fix

CDFW suggest incorporating information from the "Summary of 2016-2017 Fish Rescues Conducted Within the Yolo Bypass. CDFW 2017.

Prepared for U.S. Bureau of Reclamation" showing that juvenile steelhead (hatchery-origin smolts) were the most abundant fish species encountered in stranding surveys of northern Yolo Bypass scour pools and swales conducted by CDFW in 2017.

Response

Text has been added to report that juvenile steelhead were the most abundant fish species identified in stranding surveys in northern Yolo Bypass scour pool and swales in 2017.

Comment SA01-28

Comment

Comment 7, Section 8, PDF Page 80

CDFW rescue operations may continue, but rescued sturgeon would still undergo considerable stress and potential injury during capture, which may result in delays in spawning migrations and reduced spawning success.

Solution/Suggested Fix

CDFW suggest adding to this that green sturgeon and white sturgeon have also been shown to abort spawning migrations after rescue (CDFW unpublished data).

Response

Text has been added to report that green sturgeon and white sturgeon have been shown to abort spawning migrations after rescue.

Comment SA01-29

Comment

Comment 8, Overall

Formulation of mitigation measures should not defer until some future date. Several mitigation measures defer the mitigation upon consultation with CDFW for species where CDFW's role is a Trustee Agency (i.e. MM- TERR-1).

Solution/Suggested Fix

CDFW recommends mitigation measures for non-state listed species that have deferred mitigation upon CDFW consultation be revised to state what measures would be implemented to bring the level of impact to less than significant.

Response

Text has been added to address the comment.

Comment SA01-30

Comment

Comment 9, Overall

Several mitigation measures are requiring CDFW to approve biologists, review management plans, approve changes in project limits, just to name a few. CDFW as a Trustee Agency does not have the authority to approve actions that are not required as part of a CDFW permit.

Solution/Suggested Fix

CDFW recommends the various mitigation measures that have identified CDFW to approve actions as a Trustee Agency be revised to reflect the Lead Agency.

Response

Text has been added to address the comment.

Comment SA01-31

Comment

Comment 10, Overall

The Project implementation may require CESA compliance and proponent should consult with CDFW.

Response

DWR will consult with CDFW and obtain appropriate permits, and what permits are appropriate depends on the alternative selected for implementation.

Comment SA01-32

Comment

Comment 11, Overall

The Project may require notification pursuant to Fish and Game Code section 1600 et seq and the Project proponent should consult with CDFW accordingly.

Response

DWR will consult with CDFW and obtain appropriate permits, and what permits are appropriate depends on the alternative selected for implementation.

Comment SA01-33**Comment**

Comment 12, Section 8.3.3.2.1, Print Page #8-91

Impact FISH-3 CEQA's conclusion has identified Mitigation Measure MM-TERR-7 as reducing the impact to less than significant. MM-TERR-7 are surveys for valley elderberry beetle habitat prior to construction. MM-TERR-11 proposes the preparation of a compensatory restoration plan.

Solution/Suggested Fix

CDFW recommends the conclusion be revised to state MM-TERR-11.

Response

Text has modified to refer to Mitigation Measure MM-TERR-11 (Prepare and Implement a Compensatory Restoration Plan for Sensitive Vegetation Communities).

Comment SA01-34**Comment**

Comment 13, Section 9.2.2, Print Page #9-32 (CESA)

This section is discussing CESA; however, this section is describing ESA as well as CESA. The first sentence states "take of species (interpreted to mean the direct killing of a species)" is incorrect. Take as defined by Fish and Game Code section 86 is defined as to hunt, pursue, catch, capture, or kill or attempt to hunt, pursue, catch, capture or kill.

Solution/Suggested Fix

CDFW recommends "interpreted to mean the direct killing of a species" either be deleted or the appropriate definition be included.

Response

Text has been added to address the comment.

Comment SA01-35**Comment**

Comment 14, Section 9.2.2, Print Page #9-32 (CESA)

The first paragraph has included the requirements of ESA such as USFWS determining take and identifying reasonable and prudent alternatives and take being authorized under 16 USC Section 1536 (d).

Solution/Suggested Fix

CDFW recommends the first paragraph be revised to only discuss CESA as this section is only discussing the California Endangered Species Act.

Response

The sentence referring to USFWS was moved to Section 9.2.1 Federal Plans, Policies, and Regulations.

Comment SA01-36

Comment

Comment 15, Section 9.2.2, Print Page #9-32 (CESA)

Second paragraph of this section state the Fish and Game Commission is responsible for "maintaining" a list of threatened and endangered species.

Solution/Suggested Fix

CDFW recommends the word "maintaining" be revised to state "established" as described in Fish and Game Code section 2070.

Response

Text has been added to address the comment.

Comment SA01-37

Comment

Comment 16, Section 9.2.2, Print Page #9-32 (CESA)

This section is citing CEQA section 21104.2 stating that CDFW be consulted regarding impacts on rare or endangered species as defined under ESA and CESA. This section of CEQA states the state lead agency shall consult when the impact of the project on the continued existence of any endangered species or threatened species pursuant to Article 4 (commencing with Section 2090) of Chapter 1.5. This section of Fish and Game Code was repealed.

Solution/Suggested Fix

CDFW recommends this section be revised to reflect the language in section 21104 of CEQA indicating that the state lead agency consult with and obtain comments from each responsible agency, trustee agency, public agency with jurisdiction by law with respect to the project.

Response

Text has been modified to address the comment.

Comment SA01-38**Comment**

Comment 17, Section 9.3.3.2.1, Print Page #9-46

This section discusses the potential mortality or loss of habitat for special-status plant species. The CEQA conclusion has stated that the introduction or spread of invasive species is significant and has provided a mitigation measure for the preparation of a management plan. The project will be removing the top soil and the seed source of special-status plants.

The EIR should include a mitigation measure to stock pile the top soil and replace the top soil in the areas of temporary impact.

Solution/Suggested Fix

CDFW recommends a mitigation measure be included to stock pile the top soil of the sites located within special-status species habitat and replace the top soil in the appropriate areas to reduce the loss of special-status plant species.

Response

Topsoil stockpiling is typically addressed in Conceptual Restoration Plans. Language was added to Mitigation Measure MM-TERR-11 (Prepare and Implement a Compensatory Restoration Plan for Sensitive Vegetation Communities) and Mitigation Measure MM-TERR-19 (Conduct Pre-construction Surveys for Special-Status Plant Species in Alkaline Grasslands) indicating that the restoration plan shall include detailing of topsoil stockpiling for areas with native vegetation and/or seeds of special-status plants, as feasible.

Comment SA01-39**Comment**

Comment 18, Section 9.3.3.2.1, Print Page #9-46

Page 9-17 states plant surveys may not have captured some of the annual species with the potential to occur in the study area. In order to lessen the potential mortality for special-status plant species, pre-construction surveys should be conducted prior to ground-disturbing activities. The mitigation measure should also provide measures to avoid or minimize by collecting and then replacing the topsoil.

Solution/Suggested Fix

CDFW recommends a mitigation measure be included to conduct pre-construction surveys for special-status plants and to avoid impacts if found.

Response

Surveys were conducted within the construction study area for Alternative 1 during the appropriate flowering period for the annual species. However, surveys were not conducted within the entirety of the construction study area for the rest of the alternatives. Pre-construction

special-status plants species surveys are included as Mitigation Measure MM-TERR-19 (Conduct Pre-construction Surveys for Special-Status Plant Species in Alkaline Grasslands). See also Response to Comment SA01-38.

Comment SA01-40

Comment

Comment 19, Section 9.3.3.2.2, Print Page #9-55

Mitigation measure MM-TERR-2 requires a CDFW-approved biologist. Please note that CDFW would only approve biologist as required by a permit. The Lead Agency would be responsible for all other approvals.

Solution/Suggested Fix

CDFW recommends that the MM- TERR-2 be revised to state that the Lead Agency would review the qualifications of biologist to oversee the compliance of the CEQA mitigation measures. CDFW will approve biologist as required by CDFW permits.

Response

Text has been modified to address comment.

Comment SA01-41

Comment

Comment 20, Section 9.3.3.2.2, Print Page #9-56

The worker awareness program should be given not just prior to construction but to all personnel new to the project.

Solution/Suggested Fix

CDFW recommends that Mitigation Measure MM-TERR-3 be revised to state the prior to the start of construction all personnel and contractors are required to complete the mandatory worker environmental awareness as well as for all new personnel before they commence with work.

Response

Text has been modified to address comment.

Comment SA01-42

Comment

Comment 21, Section 9.3.3.2.2, Print Page #9-58

The 6th bullet under MM-TERR-4 states that capture and relocation of wildlife can only be performed with appropriate USFWS and CDFW handling permits. CDFW Scientific Collecting Permits do not allow translocation of wildlife.

Solution/Suggested Fix

CDFW recommends that MM-TERR-4 be revised to state that the capture and relocation of injured or trapped wildlife listed under ESA or CESA can only be performed by personnel with appropriate state and/or federal permits.

Response

Text has been modified to address comment.

Comment SA01-43

Comment

Comment 22, Section 9.3.3.2.2, Print Page #9-59

Second paragraph of MM-TERR-5 states no work activities, materials or equipment shall be stored outside the project limits without permission from the regulatory agencies. Work outside of the project limits would need to be evaluated and approved by the CEQA lead agency with the possibility of CEQA being recirculated. CESA permits would not be able to authorize work outside of the project limits without the evaluation from the Lead Agency.

Solution/Suggested Fix

CDFW recommends that second paragraph be revised to state the no work activities, materials or equipment be stored outside of the project limits without permission from the Lead Agencies.

Response

Text has been modified to address comment.

Comment SA01-44

Comment

Comment 23, Section 9.3.3.2.3, Print Page #9-65

Surveys for GGS should also be conducted if construction activities stop for a period of 2 weeks or more.

Solution/Suggested Fix

CDFW recommends that MM-TERR- 12 be revised to also include conducting GGS surveys if construction activities stop for a period of two weeks or more.

Response

Text has been modified to address comment.

Comment SA01-45

Comment

Comment 24, Section 9.3.3.2.5, Print Page #9-70

Fish and Game Code § 3503.5 states it is unlawful to take, possess, or destroy any birds in the orders of Falconiformes or Strigiformes (birds-of-prey or raptors) or take, possess, or destroy the nest or eggs of any such bird. In addition Fish and Game Code 3503 protects nest or eggs of all birds. The EIR provides buffers for raptors, state and federally listed species, and migratory birds; however, as proposed this measure could cause take of other bird species. In order to avoid the destruction of nests or take of birds, CDFW recommends pre-construction nesting bird surveys be completed for all species of birds if construction or maintenance activities are to take place between February 1 and August 31.

Solution/Suggested Fix

CDFW recommends mitigation measure MM-TERR-16 be revised to remove "migratory" from the measure. All active nests should have established buffers and the buffers remain in effect until the young have fledged and are independent or if the nests is no longer active as confirmed by a qualified avian biologist.

Response

Text has been modified to address comment.

Comment SA01-46

Comment

Comment 25, Section 9.3.3.2.11, Print Page #9-85

Impact TERR-11 states the proposed mitigation measures are consistent or more comprehensive than those presented in the draft Yolo HCP/NCCP. Several mitigation measures are less protective than those in the draft Yolo HCP/NCCP such as the bird and GGS mitigation. For example, the nesting buffer for Swainson's hawk is typically measured at 1,320 feet; however, the EIR does not reflect this.

Solution/Suggested Fix

As CEQA does not require same level of analysis as a NCCP/HCP, please revise language in the Draft EIR/EIS to avoid comparisons with the mitigation measures in the Draft Yolo NCCP/HCCP where these are not consistent.

Response

Text has been modified to address comment.

Comment SA01-47**Comment**

Comment 26, Section 9.3.3.3.1, Print Page #9-91

Mitigation Measure MM-TERR-19 defers development of mitigation measures for special-status plant species prior to construction. Deferring the development of mitigation measures does not bring the level of significance to less than significant. We suggest adding measures to mitigate for special-status plants to the EIR. Please note that CDFW is only a regulatory agency for plant species that are rare, endangered, or threatened by the Fish and Game Commission.

Solution/Suggested Fix

CDFW recommends that MM-TERR- 19 be revised to include measures to avoid, minimize or mitigate impacts to special-status plant species.

Response

Text has been modified to address comment. Mitigation Measure MM-TERR-19 (Conduct Pre-construction Surveys for Special-Status Plant Species in Alkaline Grasslands) now states: A qualified biologist shall conduct pre-construction surveys for special-status plant species with the potential to occur in the alkaline grassland portions of the Project construction area (heartscale, San Joaquin spearscale, Heckard's pepper grass, California alkali grass, and saline clover). Surveys shall be conducted during the flowering period for each special-status plant species. If one or more special-status plant species are detected, then a qualified biologist shall flag populations that can be avoided, monitor activities near special-status plant species populations during construction, monitor collection of seeds from populations that cannot be avoided, monitor topsoil collection in areas with special-status plants (where feasible), and monitor replacement of topsoil and/or seeding of special-status plant species after construction is completed.

Comment SA01-48**Comment**

Comment 27, PDF Page 23, Print Page #ES-17

Issues of Known Controversy: Not mentioned here are changes to recreation, public use, and loss of usable public lands.

Solution/Suggested Fix

Please add.

Response

Sections ES.7, 1.6, and 23.9 have been updated to include these additional concerns.

Comment SA01-49

Comment

Comment 28, Section 1.6.2, PDF Page 130, Print Page #1.12

Issues of Known Controversy: Not mentioned here are changes to recreation, public use, and loss of usable public lands.

Solution/Suggested Fix

Please add.

Response

Sections ES.7, 1.6, and 23.9 have been updated to include these additional concerns.

Comment SA01-50

Comment

Comment 29, Section 2.4.1.1, PDF Page 17, Print Page #2.17

Intake Channel: Maintenance and veg growth not described.

Solution/Suggested Fix

Please add.

Response

Maintenance would occur when the intake channel is dry because the when the river stage has fallen below the invert elevation. Text has been added to the EIS/EIR to clarify.

Comment SA01-51

Comment

Comment 30, Section 2.4.1.2, PDF Page 18, Print Page #2.18

Stop log storage?

Solution/Suggested Fix

Please specify storage of equipment and general coordination with CDFW of maintenance activities and recurring work such as installation/removal of K-rails, sediment removal, vegetation clearing etc.

Response

Stop Logs and K-rails may be stored at the pad constructed to build the Control Structure on either the existing eastern or western levee or may be stored at the purchased spoils site.

Required permits will cover the operations and maintenance operations. DWR will coordinate and notify the appropriate stakeholder agencies and landowners of maintenance activities.

Comment SA01-52

Comment

Comment 31, Section 2.4.1.4, PDF Page 22, Print Page #2.22

K Rail install and removal will be intrusive to wildlife area users.

Solution/Suggested Fix

Please explore the possibility of eliminating the need for K-Rails.

Response

The K-rails would be installed for safety purposes. K-Rail installation and removal would consist of a single day operation. The K-Rails would be put in place when the Fremont Weir is not overtopping and removed prior to an overtopping event. The K-Rails would be stored as noted in Response to Comment SA01-51. Alternatives such as collapsible fencing will be considered as the design progresses.

Comment SA01-53

Comment

Comment 32, Section 2.4.1.6, PDF Page 22, Print Page #2.22

Transport Channel: Wildlife will use this location to escape overtopping events and cross on a daily basis. Wildlife could become stranded. Mitigation could be needed to allow for wildlife escapement, including jump out “wingdam” ramps that slow flow, include vegetation, and allow wildlife to escape.

Solution/Suggested Fix

Please discuss this potential impact and appropriate mitigation measure(s).

Response

After project construction, as a topographic low point in the landscape the transport channel would convey overtopping flows, not provide habitat in which to escape from overtopping flows. Any terrestrial wildlife that would utilize the channel for movement through the bypass channel, would escape in the same manner that they entered the channel.

Comment SA01-54

Comment

Comment 33, Section 2.4.1.6, PDF Page 24, Print Page #2.24

Maintenance corridor: What is it constructed of? How and when will it be maintained? If materials are brought in they should be certified weed free. In addition, a 50' weed management corridor should be establish and sprayed yearly to reduce invasive weeds which establish adjacent to maintenance roads. O&M should be restricted to after August 1 to reduce impacts to ground nesting birds.

Solution/Suggested Fix

Please add text explanation.

Response

The road would be constructed of aggregate rock and fill. The maintenance corridor road maintenance timing would coincide with routine flood maintenance of the Yolo Bypass and would use consistent methods such as spraying, mowing, and burning (DWR 2017). The routine flood maintenance timing accounts for nesting birds and other sensitive wildlife.

Comment SA01-55

Comment

Comment 34, Section 2.4.4, PDF Page 29, Print Page #2.29

Inspection and maintenance: Schedule of transport channel maintenance including weed removal, mowing, gravel, etc. should be included in this description. Time component is important to reduce impacts to wildlife.

Solution/Suggested Fix

CDFW suggests adding language stating that inspection and maintenance activities will be done in coordination with CDFW.

Response

DWR will coordinate with and notify the appropriate stakeholder agencies and landowners of maintenance activities.

Comment SA01-56

Comment

Comment 35, Section 2.4.4.3, PDF Page 30, Print Page #2.3

Vegetation Removal: Section in need of specifics. How will this be determined? Will vegetation be removed according to DBH of trees? What is the flow criteria that is met for vegetation removal? What is the timing of maintenance? To ensure proper management we suggest adding guidelines for removal and maintenance. CDFW recommends conducting maintenance after August 1.

Solution/Suggested Fix

Please add specifics and timing.

Response

Chapter 2 includes a description of maintenance activities, and the action alternatives include removal of vegetation and debris from project channels, including the Tule Canal. As indicated in Section 2.4.4.3, "Maintenance activities would include removing vegetation and debris from the project channels annually. Grasses and woody vegetation would be allowed to remain in the channels unless it becomes an obstruction to flow within the passage channel." The text has been revised to state, "Grasses and woody vegetation would be allowed to grow within the proposed transport channel. The grasses and woody vegetation would not be allowed to be higher than the elevation of the adjacent ground outside of the proposed transport channel or the Tule Pond/Tule Canal within the Fremont Weir Wildlife Area. Therefore, the channel would avoid reducing the flood capacity of the Yolo Bypass." Adaptive management for ensuring upstream and downstream fish passage will determine when and what vegetation should be removed. Maintenance would be timed to be concurrent with flood maintenance in the same area (DWR 2017).

Comment SA01-57

Comment

Comment 36, Table 2-26, PDF Page 84, Print Page #2.84

TERR 1-8: Acreage calculations seem incorrect and do not account for additional acreage inundated. Increased inundation and frequency could convert upland vegetation to wetland or reduce value to wildlife by promoting growth of less valuable cover types, i.e. cockle bur.

I.E. - 84% of SBWA will be inundated 3-4 weeks longer. Over years of repeated inundation it may convert to an non upland vegetation type and reduce potential upland veg for GGS, VELB, ground nesting birds, badgers, etc.

Solution/Suggested Fix

Please add specific acreages to include additional habitats inundated.

Response

The acreages in Table 2-26 are for construction impacts. Operations impacts are not readily quantifiable because the spatial extent and variation of habitats impacted under operations will vary from year to year.

As visible in modeling results over a 16-year period (Figures 26-41 Appendix H5 of the EIS/EIR), many years (37 percent) exhibited little or no change in last wet day (as an indicator of inundation length), several years (19 percent) exhibited delays in the last wet day (suggesting increased inundation duration) but confined to areas that would have been inundated regardless of the project and the remaining 44 percent exhibit additional inundation. Those locations that do exhibit multiple increases in inundation duration of greater than two weeks, exhibit that condition in only one out of five years. This is not a sufficient frequency to result in a shift of non-wetland to wetland or, conversely, wetland to non-wetland.

According to the Yolo Bypass Management Plan, CDFW will drain wetlands as close as possible to April 1. The operations of the Project include closing the bypass gates by March 7 or March

15, depending upon the alternative. Therefore, the project is not expected to increase production of invasive weeds or decrease production of favored waterfowl foods.

Comment SA01-58

Comment

Comment 37, Table 9-2, PDF Page 6, Print Page #9.6

Agriculture - crop types are not specified

Solution/Suggested Fix

CDFW suggests adding specific crop types to table.

Response

Figure 11-2 in Chapter 11, *Land Use and Agricultural Resources*, shows the crop types in the Yolo Bypass. The dataset used for the vegetation communities in Chapter 9 does not have a breakdown of crop types, just the more generic agriculture category.

Comment SA01-59

Comment

Comment 38, Section 13.1.1.2, PDF Page 25, Print Page #13.1

Sac River Facilities: A map of extent and facilities is needed.

Solution/Suggested Fix

CDFW suggests adding map of extent and facilities

Response

Figure 13-1 was intended to include the scope of the project impact area plus a buffer. The project alternatives would not affect the Sacramento River facilities; therefore, these areas are not included in the impact area. Additionally, the map is already so zoomed out that it is difficult to locate some features; therefore, Figure 13-1 has not been updated to include an even wider footprint.

Comment SA01-60

Comment

Comment 39, Section 13.3.3.2, PDF Page 41, Print Page #13.7

SBWA and YBWA as alternatives to FWWA: Neither of these are adequate. SBWA is much more limited in size and YBWA is only open 3 days/week. In addition, none offer big game hunting. We suggest including mitigation for loss, disruption, and/or degradation of WA access.

We suggest including mitigation for changes in acreage of usable land due to increased inundation.

Solution/Suggested Fix

Please revise.

Response

The document was updated to remove SBWA and YBWA as viable alternatives to FWWA during construction. Nonetheless, the construction-related impacts would be short-term (i.e., limited to a single season) between April 15 and November 1 and less than significant. See also Master Response 4: Impacts to Landowners and Other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment SA01-61

Comment

Comment 40, Section 13.3.3.2, PDF Page 46, Print Page #13.22

"Effects to SBWA nominal in size": 84% of acreage is not nominal.

Solution/Suggested Fix

Please edit text and accurately show effects to SBWA

Response

The document states: "The SBWA lands that would result in the longest periods of increased inundation between three and four weeks under Alternative 1 would have limited effects as these lands are nominal in size and occur within areas of SBWA that would be inundated substantially longer (20 weeks or more) under existing conditions." In this instance, "nominal in size" refers to 3 percent of the SBWA lands (10.7 acres) that would be inundated between 3 and 4 weeks. See also Response to Comment SA01-5.

Comment SA01-62

Comment

Comment 41, Figure 13.5, PDF Page 49, Print Page #13.25

East side of SBWA not mapped.

Solution/Suggested Fix

Please include all of SBWA in the modeled change in inundation in Figure 13.5

Response

The eastern extent of the SBWA was modeled but it was not mapped because it is a transition area between the 1D channel and the 2D grid. However, the differences for the eastern extent of the SBWA would be similar to the other areas of the bypass for each alternative (i.e., the eastern SBWA existing condition is similar to middle portion of the SBWA existing condition; and eastern SBWA for Alternative 1 would be similar to the middle portion of the SBWA for Alternative 1, etc.).

Comment SA01-63

Comment

Comment 42, PDF Page 61, Print Page #13.37

Closure of Well-Established Wildlife Areas: increased inundation does not close FWWA or SBWA but it does make them of less use to the public and restrict access. This needs to be considered; not just closure.

Solution/Suggested Fix

Please revise text.

Response

In addition to the specific and quantifiable effects on YBWA closures, the document also analyzes the effects on access to recreation opportunities and effects on lands available for recreation use under each alternative under the sections titled "Effects on access to Recreation Opportunities at Established Wildlife Areas" and "Effects on Available Lands for Recreation Opportunities at Established Wildlife Areas," respectively.

Comment SA01-64

Comment

Comment 43, Section 13.3.3.2.1, PDF Page 63, Print Page #13.39

FWWA Alternative parking lot: Where will it be located?

Solution/Suggested Fix

Please add location of alternative parking lot.

Response

The document states: "If the existing FWWA parking area is utilized for construction purposes and the FWWA remains open to the public, an alternative parking area will be provided to allow the public to access the FWWA lands for recreation purposes." It is not expected that an alternative parking area would be needed, but if necessary, a location would be determined at that time.

Comment SA01-65**Comment**

Comment 44, Section 13.3.3.2.1, PDF Page 63, Print Page #13.39

DWR parking lot reclamation: Due to increased traffic and disruption from project related O&M, CDFW would prefer a new parking lot built on the west side of the FWWA to (improve) long-term disruption to users, Rehabilitation of the east side may still be necessary.

Solution/Suggested Fix

To maximize user access it may be best to provide a new parking lot on the west side of FWWA. Please consult with CDFW.

Response

DWR and Reclamation understand that the existing parking lot location is the only viable public parking lot location. Private lands prevent access on the west side of FWWA.

Comment SA01-66**Comment**

Comment 45, Impact REC-1, all alternatives

CDFW suggests that construction in FWWA halt on the first weekend or first two days of any hunt opening season as it has for other projects, i.e. Fremont Weir Adult Fish Passage Project.

Response

Inclusion of this condition in the construction mitigation is not desirable because these additional construction limitations would likely cause construction to take longer than one season. As a result, the impacts to recreational hunting would potentially occur in two seasons rather than just one season without these conditions.

Comment SA01-67**Comment**

Comment 46, Appendix A: 2.1.12, PDF Page 52, Print Page #2.24

FWWA Closure: Please remove "except when river waters are present". Access is not prohibited at FWWA during overtopping. There is a warning and nothing else.

Solution/Suggested Fix

Please revise text.

Response

The cited text has been revised.

Comment SA01-68

Comment

Comment 47, Appendix A: 5.2.2.3, PDF Page 85, Print Page #3.21

Waterfowl Impacts: While the figures in Appendix A showing changes in acreages of foraging habitat as a result of Project operations are informative, site specific maps focused on managed wetlands showing changes in inundation depth and frequency, and tables displaying change in acres of foraging habitat for specific areas, are necessary to evaluate impacts to waterfowl hunting. Changes in foraging habitat quality can displace waterfowl locally, potentially resulting in significant impacts to waterfowl hunting. There are at least five privately owned wetland properties (i.e. duck clubs) within the Yolo Bypass with easements and long-term contracts to benefit wintering and breeding waterfowl, and other species that utilize this niche south of the Yolo Bypass WA. More information is needed on quantification of impact to shallow water wetland dependent avian species (i.e. dabbling ducks, shorebirds etc). For example, dabbling ducks need 6-8" water depth to forage, even shallower for shorebirds. 18" deep wetlands do not provide the same benefit as 6" deep wetlands for most of these species.

Solution/Suggested Fix

Please add map as described (if not already provided).

Response

The purpose of Appendix A is not to complete a full analysis that is compliant with CEQA and NEPA, but to provide a comparison of how alternatives perform according to a set of evaluation criteria. The analyses of the alternatives are focused on an overview of the full impact analyses that are included in the chapters. Appendix A includes a summary of key information to allow higher-level comparison of alternatives.

Comment SA01-69

Comment

Comment48, Section 4.1.1, PDF Page 3, Print Page #4-3

Figure 4-1: It is not clear to the reader why some of the creeks on the map are displayed and why others have been omitted. For example Big Chico Creek has supported Chinook salmon in years past and should be listed. Why are some of the Mill creeks and one of the Pine creeks on the map at all given their locations and drainages? Also, Deer Creek is a tributary to the Sacramento River and is not on the map.

Solution/Suggested Fix

CDFW suggest the map be revisited and corrected.

Response

The intent of Figure 4-1 was to provide an overview of project area to support the discussion of the hydrology and hydraulics. It was not intended to be an exhaustive drainage map of the

project area. Regarding the reference that sensitive species have been noted in some drainages not depicted on this map, the reader is referred to Section 8 of the EIS/EIR.

Comment SA01-70

Comment

Comment 49, Section 8.1.1.3, PDF Page 6, Print Page #8-6

This sentence needs clarity as to what really is the amount of area that this document identifies as floodplain and what does fully wetted mean, "When flows within the Yolo Bypass are greater than about 75,000 cfs, the floodplain is considered fully wetted".

Solution/Suggested Fix

To avoid confusion, CDFW suggests explaining that the entire Yolo Bypass is considered floodplain habitat when inundated.

Response

Text has been edited to explain that the entire Yolo Bypass is considered floodplain habitat when inundated.

Comment SA01-71

Comment

Comment 50, Section 8.3.3.5.1, PDF Page 21, Print Page #8-153

First paragraph, last sentence: "... modifications to berms.."

Solution/Suggested Fix

Is it more accurate to describe these berms as new construction?

Response

The proposed berms are on top of existing roads functioning as berms, characterized as reinforcement or modification of existing berms.

Comment SA01-72

Comment

Comment 51, Section Chapter 9

CDFW suggests that impacts to wildlife species important to recreation be analyzed to an equivalent level of detail as was done for fish species (Section 8.1.2 and Table 8-2).

Response

Fish species important to recreation were analyzed in Chapter 8 primarily due to their potential to serve as predators of salmonids and, therefore, their potential impact on achieving project objectives under the different alternatives. As stated in the beginning of Chapter 9, terrestrial biological resources include common vegetation and habitat types, sensitive plant communities, and special-status plant and animal species. To the extent species important to recreation may affect sensitive biological resources, they are discussed in this chapter.

Comment SA01-73

Comment

Comment 52, Section 9, PDF Page 2, Print Page 2

Third paragraph, third line: "The 3,660-acre California Department of Fish and Wildlife (CDFW) Yolo Bypass Wildlife Area "

Solution/Suggested Fix

The correct size of YBWA is 16600 acres

Response

Text modified to address comment.

Comment SA01-74

Comment

Comment 53, Section Chapter 8 and Appendix A, PDF Page 5, Print Page Chapter 8, 8-189 Appendix A, 45

Chapter 8, 189 -MM-FISH-5 and First sentence on page 45, Appendix A: "To reduce fish passage delays..."

Solution/Suggested Fix

As described in Chapter 8, the bypass channels in Alternative 4 will have a significant impact to migrating fish. Even with MM-FISH-5 in place, there is potential for take of listed species during the monitoring program described in MM-FISH-5. To minimize and fully mitigate take of state listed winter-run and spring-run Chinook salmon, an incidental take permit will be required for both bypass channels and MM-FISH-5.

Response

DWR will consult with CDFW and obtain appropriate permits, and what permits are appropriate depends on the alternative selected for implementation

Comment SA01-75**Comment**

Comment 54, Section 5.2.1.6, PDF Page 42, Print Page 5-14

Last two lines on page: "Sturgeon that are unable to pass during these periods would either face passage delays at Fremont Weir or would turn around and travel to the Wallace Weir collection facility". CDFW agrees that these are likely scenarios, but the fate of sturgeon under the described conditions is unknown. Sturgeon could end up stranding in scour channels on FWWA, the Oxbow Pond, the Deep Pond, Tule Pond or anywhere in the Tule Canal/Toe Drain.

Solution/Suggested Fix

CDFW suggests providing a more detailed description of the potential fate of sturgeon that are not able to pass at Fremont Weir.

Response

Text regarding stranding potential has been added to Appendix A.

Comment SA01-76**Comment**

Comment 55, Section 2.1.5.1, PDF Page 42, Print Page 2-14

Third paragraph, third sentence: "During flood pulses, the Yolo Bypass provides fish in the Sacramento River an alternative migration corridor." This sentence is accurate for juvenile fish and maybe also downstream migrating steelhead, but not for adult upstream migrating fishes.

Solution/Suggested Fix

Clarify that the sentence is referring to juvenile fish.

Response

The Yolo Bypass provides a migration corridor for both adults and juveniles when inundated (Reese et al 2010).

Comment SA01-77**Comment**

Comment 56, Section 5.2.3.2, PDF Page 47, Print Page 19

Last, line, first paragraph under Recreation Impacts reads: "The evaluation factors for agricultural impacts are:"

Solution/Suggested Fix

Change 'agricultural' to 'recreation'

Response

The cited text has been revised.

Comment SA01-78

Comment

Comment 57, Section 5.2.3.2, PDF Page 47, Print Page 19

The bullet point: "Inundation of recreational areas or access to recreational areas that could impact hunting activities (include pheasant, waterfowl, quail, turkey, mourning dove, cottontail, jackrabbit, and deer hunting)" does not capture other recreation activities.

Solution/Suggested Fix

Add language to the bullet point so that other forms of recreation besides hunting are included and analyzed. This could include, for example, wildlife viewing and fishing.

Response

The cited text has been revised.

Comment SA01-79

Comment

Comment 58, Section 5.2.3.2, PDF Page 47, Print Page #19

"The comparison of alternatives would follow the same patterns in the other wildlife areas"

Solution/Suggested Fix

The meaning of this sentence is unclear. The three wildlife areas are managed differently. As such, impacts from increased inundation should be evaluated differently. For example, the YBWA allows users to access the WA by vehicle. If roads are wet due to increased inundation recreational access could be limited. Another example is SBWA which is managed for upland species. Increased inundation at SBWA will likely have a negative impact on these species. Suggest including a full evaluation of impacts to each of the three wildlife areas. Please also see comment letter for a more detailed comment.

Response

Additional text has been added about other recreation areas.

Comment SA01-80

Comment

Comment 59, Section 5.3, PDF Page 68, Print Page #40

Table 5-17, evaluation factor "Juvenile stranding or predation risk" does not seem to reflect findings under Alternative 4. On page 8- 190 the impacts are described as "significant and unavoidable"

Solution/Suggested Fix

Please update Table 5-17 to reflect the findings in chapter 8, Alternative 4.

Response

Table 5-17 has been updated to be consistent with Table 5-2.

Comment SA01-81

Comment

Comment 60, General

Please consider that the Yolo Bypass Land Management Planning effort completed in 2008 may need to be revisited and revised, depending on the project outcome, to accommodate shifts in goals, management strategies and public use.

Response

The EIS/EIR addresses the effects of the Project on adopted plans. The EIS/EIR has not identified that the Project would result in significant changes to resources within the Yolo Bypass that are managed under the Yolo Bypass Wildlife Area Land Management Plan (see Chapters 9, Vegetation, Wildlife, and Wetlands; Chapter 11, *Land Use and Agricultural Resources*, and Chapter 13, *Recreation*). Therefore, revisions to this plan should not be required.

Comment Letter SA02, Brian Bugsch, California State Lands Commission

Comment SA02-1

Comment

The California State Lands Commission (Commission) staff has reviewed the subject Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project (Project), currently being proposed by the Department of Water Resources (DWR) and the U.S. Bureau of Reclamation (USBR). Based on this review, we offer the following comments. Based upon the information contained in the Draft EIS/EIR, and a review of in house records, Commission staff has determined that portions of the proposed Project may cross State-owned sovereign land in the Sacramento River, which is under the jurisdiction of the Commission. On April 12, 1956, the Commission authorized the issuance of PRC 1657.9, a Right-of-Way Permit to the Sacramento and San Joaquin Drainage District (SSJDD), acting by and through the Reclamation Board of the State of California, for the construction, reconstruction, repair, operation, and maintenance of the West Levee of the Yolo Bypass, over and across the Old Channel of the Sacramento River. On the same date, the

Commission also authorized the issuance of PRC 1658.9 to the SSJDD for a flowage easement over and across the Old Channel of the Sacramento River, and PRC 1659.9, for the construction, reconstruction, repair, operation, and maintenance of a dike as an integral part of the Fremont Weir. Prior to the start of the proposed Project, DWR and USBR must provide the Commission with copies of all permits of applicable public agencies having jurisdiction over such activities, including but not limited to, the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the California Department of Fish and Wildlife, the Central Valley Flood Protection Board, and the Regional Water Quality Control Board. As the Project continues, Commission staff requests that DWR and USBR contact Commission staff to determine whether the Project, or any components of the Project along the Sacramento River require a lease and formal authorization from the Commission for the use of sovereign land.

Response

Reclamation and DWR will obtain required permits, and what permits will be required depends on the alternative selected for implementation. DWR will coordinate with the California State Lands Commission during implementation to identify if leases or authorizations are necessary.

Comment SA02-2

Comment

Additionally, the uplands on the right bank, over which portions of the Project may extend, is located within Rancho Rio Jesus Maria. The State is precluded from asserting that it acquired sovereign title interests in ranchos in 1850 by virtue of its admission to the United States, pursuant to the holdings in *Summa Corporation v. California*, (1984) 466, U.S. 198. Therefore, the State does not assert ownership of the Sacramento River within the rancho boundaries.

Response

DWR is working with its real estate division to characterize ownership considerations.

Comment SA02-3

Comment

In addition, please be advised that the Sacramento River in the Project area, lies in an area subject to a public right of navigation. This public right provides that members of the public have the right to navigate and exercise the incidences of navigation in a lawful manner on State waters that are capable of being physically navigated by oar or motor propelled small craft. Such uses may include, but are not be limited to, boating, rafting, sailing, rowing, fishing, fowling, bathing, skiing, and other water-related public uses (*People ex rel. Baker v. Mack* (1971) 19 Cal. App.3d 1040). The proposed Project must not unduly restrict or impede the navigation and recreational rights of the public. (Civil Code§ 3479).

Response

Project alternatives do not impact the Sacramento River navigational or recreational rights. When water enters the Bypass from the Sacramento River as a result of Project operations, the river water levels are generally very high. The portion of Sacramento River water that enters the Bypass is only a small percentage of the river flows and has a nominal impact on river stage as it relates to recreational navigability and recreational uses.

Comment SA02-4**Comment**

The Commission has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The Commission also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (PRC §6301 and §6306). All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the Common Law Public Trust.

As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all people of the State for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the ordinary high water mark, which is generally shown by the mean high tide line (MHTL), except for areas of fill or artificial accretion, or where the boundary has been fixed by agreement or a court decision. On navigable non-tidal waterways, including lakes, the State holds fee ownership of the bed of the waterway landward to the ordinary low-water mark and a Public Trust easement landward to the ordinary high-water mark, except where the boundary has been fixed by agreement or a court decision. Such boundaries may not be readily apparent from present day site inspections

The above determinations are without prejudice to any future assertion of State ownership or public rights, should circumstances change, or should additional information come to our attention. In addition, these comments are not intended, nor should it be construed as, a waiver or limitation of any right title, or interest of the State of California in any lands under its jurisdiction.

Response

DWR will coordinate project implementation with the California State Lands Commission, as required for the alternative selected for implementation.

Comment Letter SA03, Adam Laputz, Central Valley Regional Water Quality Control Board

Comment SA03-1

Comment

Pursuant to the California Department of Water Resources' 22 December 2017 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the Request for Review for the Draft Environment Impact Report for the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project, located in Yolo and Sutter Counties. Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

I. Specific Comment

The Central Valley Water Board supports this project because of the significant potential for this project to improve aquatic habitat conditions and contribute to the protection of native fish and wildlife beneficial uses. Cumulatively, this and other ecological restoration and enhancement projects are expected to change aquatic habitats in the Yolo Bypass and Delta. In terms of water quality, the biggest concern continues to be mercury, since over 50% of the mercury entering Delta comes through the Cache Creek/Yolo Bypass, and increased inundation in this system will increase methylation of mercury within the bypass - and currently the Delta is impaired for mercury. It is important for the Lead Agency to continue to support and engage in Delta methylmercury monitoring studies and TMDL work so that the Central Valley Water Board can work to manage the sources, and continue to consider practices that may be feasible. The Delta Regional Monitoring Program (Delta RMP) is the Central Valley Water Board's platform for this type of monitoring and studies. Towards this end, we propose the following modifications shown in underline/strikeout below that would reflect this general approach.

Mitigation Measure MM-WQ-4: Develop a water quality mitigation and monitoring program

The Lead Agencies shall develop and implement a program to reduce, minimize, or eliminate increases in water quality constituents.

The program shall include ~~development of a monitoring plan~~, including frequent sampling and reporting, particularly for existing constituents of concern. Instead of developing a stand-alone monitoring plan, the Lead Agencies will become a funding partner and Steering Committee Member of the Delta Regional Monitoring Program (Delta RMP). Monitoring within the Delta RMP is key to understanding methylmercury impacts of this project as they affect Delta water quality. Understanding effects of this project on methylmercury and other potential contaminants of concern, and other cumulative considerations such as effects on primary production, hydrology, residence time, and effects on the lower food web, will ensure water quality information is available for TMDL and policy considerations in managing Delta Water quality.

The Lead Agencies shall coordinate with the Water Boards and implement ~~implementation of the current TMDLs to comply with water quality regulations. share monitoring information and~~ Additionally, the Lead Agencies shall contribute to the efforts to reduce constituents of concern within the Yolo Bypass. If monitoring levels are found to be above water quality objectives, Lead Agencies will consider means to reduce discharges throughout the bypass region. However,

with respect to methylmercury levels, it is understood that water quality objectives are currently being exceeded. Therefore, the Lead Agencies will continue to support and implement TMDL requirements and participate in updating TMDL requirements in the future.

Implementation of mitigation measures may include supporting upstream source controls, conducting studies for management practices to reduce constituents of concern within the Yolo Bypass, and implementing feasible management practices and monitoring to reduce those constituents. The Lead Agencies will work with the Central Valley Water Board and other coordinating agencies in developing, testing, and implementing feasible methylmercury management practices.

Implementation of the water quality mitigation and monitoring program included in MM-WQ-4 would reduce ~~any~~ impacts of the Project. However, sources of Hg, such as Cache and Putah Creeks, continue to release Hg to the bypass, which can be anticipated to sustain production of MeHg in bypass sediments. Therefore, this impact would be **significant and unavoidable**.

Response

See Response to Comment FA01-4 regarding the text of Mitigation Measure MM-WQ-4. Continued cooperation will be needed to collect sufficient data to assess project impacts and identify and implement appropriate mitigation. Data will be submitted to the RWQCB in December 2019. For this project, DWR will work with the RWQCB to comply with the issued permit.

Comment SA03-2

Comment

II. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have

been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues.

For more information on the Water Quality Control Plan for the Sacramento and San Joaquin River Basins, please visit our website:

http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/.

Response

Information regarding the Basin Plan is included within the Chapter 6, *Water Quality*. Additional text has been added based on the language provided in this comment.

Comment SA03-3

Comment

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Policy is available on page IV-15.01 at:

http://www.waterboards.ca.gov/centralvalleywater_issues/basin_plans/sacsjr.pdf

In part it states: Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State. This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

Response

This project does not include discharge of wastewater. Surface water quality impacts are evaluated in Chapter 6, and groundwater quality impacts are addressed in Chapter 7.

Comment SA03-4

Comment

Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Construction General Permit Order No. 2009-009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

For more information on the Construction General Permit, visit the State Water Resources Control Board website at:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml.

Response

Reclamation and DWR will obtain permits required, and which permits are required will depend on the alternative selected for implementation. See Chapter 24.

Comment SA03-5

Comment

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by the USACOE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACOE at (916) 557-5250.

Response

Reclamation and DWR will obtain permits required, and which permits will be required depends on the alternative selected for implementation. See Chapter 24.

Comment SA03-6

Comment

Clean Water Act Section 401 Permit - Water Quality Certification

If an USACOE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any

other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance (i.e., discharge of dredge or fill material) of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications.

Response

Reclamation and DWR will obtain permits required, and which permits will be required depends on the alternative selected for implementation. See Chapter 24.

Comment SA03-7

Comment

Waste Discharge Requirements (WDRs)

Discharges to Waters of the State

If USACOE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation.

Land Disposal of Dredge Material

If the project will involve dredging, Water Quality Certification for the dredging activity and Waste Discharge Requirements for the land disposal may be needed.

For more information on the Water Quality Certification and WDR processes, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/help/business_help/permit2.shtml.

Response

Reclamation and DWR will obtain permits required, and which permits will be required depends on the alternative selected for implementation. See Chapter 24.

Comment SA03-8

Comment

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Risk General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Risk Waiver) R5-2013-0145. Small

temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Risk General Order and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Risk Waiver and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2013-0145_res.pdf

Response

Reclamation and DWR will obtain permits required, and which permits will be required depends on the alternative selected for implementation. See Chapter 24.

Comment SA03-9

Comment

Low or Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for Dewatering and Other Low Threat Discharges to Surface Waters (Low Threat General Order) or the General Order for Limited Threat Discharges of Treated/Untreated Groundwater from Cleanup Sites, Wastewater from Superchlorination Projects, and Other Limited Threat Wastewaters to Surface Water (Limited Threat General Order). A complete application must be submitted to the Central Valley Water Board to obtain coverage under these General NPDES permits.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/rS-2013-0074.pdf

For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/rS-2013-0073.pdf

Response

Reclamation and DWR will obtain permits required, and which permits will be required depends on the alternative selected for implementation. See Chapter 24.

Comment SA03-10

Comment

NPDES Permit

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit.

For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/help/business_help/permit3.shtml

Response

Reclamation and DWR will obtain permits required, and which permits will be required depends on the alternative selected for implementation. See Chapter 24.

Comment Letter SA04, Erik Vink, Delta Protection Commission

Comment SA04-1

Comment

Thank you for providing the Delta Protection Commission (Commission) the opportunity to review the Draft Environmental Impact Statement/ Environmental Impact Report (Draft EIS/EIR) for the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project (Project). The Draft EIS/EIR addresses methods to improve fish passage and increase floodplain fisheries rearing habitat in the Yolo Bypass to benefit Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, and Southern Distinct Population Segment green sturgeon. The Commission is a State agency charged with ensuring orderly, balanced conservation and development of Delta land resources and improved flood protection. Local governments must ensure that development projects within the Primary Zone of the Legal Delta are consistent with the Commission's Land Use and Resource Management Plan (LURMP). Most of the Project area is located within the Primary Zone. Proposed Bureau of Reclamation (BOR) and California Department of Water Resources (DWR) actions are not subject to consistency requirements with the LURMP since the Project is sponsored by Federal and State agencies. However, the Commission reviewed the project for possible impacts on the resources of the Primary Zone. The Commission appreciates the efforts of BOR and DWR to protect the natural resources of the Delta, particularly improvements to fisheries habitat, ensure

adequate flood protection, and preserve agriculture within the Yolo Bypass. We previously commented during the Draft EIR/EIS scoping process on LURMP goals and policies that are relevant to the environmental analysis and the need to incorporate mitigation measures if there are negative impacts on agricultural or recreational land uses or activities. The Draft EIR/EIS addresses LURMP policies related to recreation. We urge BOR and DWR to review the Project for consistency with other LURMP policies, such as those related to agriculture, flood protection, natural resources, water quality, and water seepage.

Response

The EIS/EIR has added the LURMP policies to the regulatory setting in Chapters 4 (Hydrology, Hydraulics, and Flood Control), 6 (Water Quality), 7 (Groundwater), and 11 (Land Use and Agricultural Resources).

Comment SA04-2

Comment

Future revisions to the EIR/EIS should address the concerns of Yolo County and Yolo Habitat Conservancy about consistency between the Project and the Yolo Habitat Conservation Plan/Natural Community Conservation Plan.

Response

The Final Yolo HCP/NCCP was reviewed and the Project is consistent with the provisions of that document. Specific comments from Yolo County and the Yolo Habitat Conservancy on consistency concerns have been addressed in those individual comments.

Comment SA04-3

Comment

The Draft EIR/EIS should also provide mitigation measures for the permanent and temporary loss of agricultural land within the project footprint, which would typically be at a 1:1 mitigation ratio, and the effects of increased periods of inundation on agricultural lands, including lost economic productivity, loss of crop insurance policies or increased premiums, and potential conversion of agricultural land to non-agricultural uses.

Response

Project Alternatives, except Alternative 4, would not permanently convert important farmland. Mitigation is not proposed for temporary losses because those changes do not exceed the significance criteria under CEQA. Under Alternative 4, important farmland may be converted to nonagricultural uses and the impacts of the alternative are mitigated to less than significant. Economic impacts are discussed in Chapter 16, *Socioeconomics*. Please also see Master Response 4: Impacts to Landowners and Other Users of Land. There is no legal requirement to mitigate for purely socioeconomic impacts caused by a project under CEQA or NEPA. To the

extent appropriate and required by law, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment Letter SA05, Terri Gaines, Delta Stewardship Council

Comment SA05-1

Comment

Thank you for the opportunity to review and comment on the Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR) for the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project (Project). The Delta Stewardship Council (Council) supports the joint effort of the Department of Water Resources (DWR) and Bureau of Reclamation to improve fish passage and rearing habitat in the Yolo Bypass. We appreciate your efforts to address the 2009 Biological Opinion by improving current conditions for four federally listed anadromous fish species.

In our previous comment letter dated May 6, 2013, we requested that you file a certification of consistency with the Council, per Water Code section 85225 and 85057.5. Based on the project description, Council staff believes your project meets the definition of a covered action.

Below we offer additional information on the Delta Plan consistency certification process that we hope will be useful as you complete your final environmental documentation. We also highlight several Delta Plan regulatory policies that are commonly relevant to habitat restoration projects and provide a few recommendations. We anticipate that consideration of these policies within the Draft EIS/EIR will provide a foundation for your preparation of a Delta Plan consistency certification.

Response

DWR will work with the Delta Stewardship Council to identify if the actions included within the selected alternative are within the legal Delta. If the selected alternative meets the criteria for a covered action, DWR will coordinate with the Delta Stewardship Council and file a certification of consistency.

Comment SA05-2

Comment

Comments on the Draft EIS/EIR

We appreciate that the 2009 Delta Reform Act is referenced under section 9.2.2 of the State Plans, Policies, and Regulations for Vegetation, Wetlands, and Wildlife Resources of the Draft EIS/EIR. We recommend that you also include the Delta Plan Policies listed below in the forthcoming Final EIS/EIR "Regulatory Setting" sections:

- Chapter 4 - Hydrology, Hydraulics, and Flood Control
- Chapter 5 - Surface Water Supply

- Chapter 11 - Land Use and Agricultural Resources

Response

Chapters 4, 5, and 11 have been revised to include Delta Plan Policies in the Regulatory Setting sections.

Comment SA05-3

Comment

Delta Plan Policies

The Delta Plan includes regulatory policies that are applicable to covered actions. Below, we have highlighted key regulatory policies from the Delta Plan that may be specifically relevant to the Project's certification of consistency with the Delta Plan. To better assist in your certification of consistency, we encourage you to review these recommendations and revisit the following Delta Plan policies before filing:

Mitigations Measures: The Draft EIS/EIR provides mitigation measures throughout the report. However, Council staff recommend that mitigation measures included in the Mitigation Monitoring and Reporting Program to be included in the Final EIS/EIR, be consistent with mitigation measures identified in the Delta Plan Program EIR. Alternatively, substitute mitigation measures that are equally or more effective can be included, as stated in Delta Plan Policy G P1 (23 Cal. Code Regs. section 5002). For more information the Delta Plan's Mitigation and Monitoring Report Program is available at:
(http://deltacouncil.ca.gov/sites/default/files/documents/files/Agenda%20Item%206a_attach%202.pdf).

Best Available Science and Adaptive Management: Delta Plan Policy G P1 states that actions subject to Delta Plan regulations must document use of best available science as relevant to the purpose and nature of the project. The regulatory definition of "best available science" is provided in Appendix 1A of the Delta Plan
(<http://deltacouncil.ca.gov/sites/default/files/2015/09/Appendix%201A.pdf>).

Delta Plan Policy G P1 also requires that ecosystem restoration and water management covered actions include adequate provisions for continued implementation of adaptive management, appropriate to the scope of the action. This requirement is satisfied through A) the development of an adaptive management plan that is consistent with the framework described in Appendix 1B of the Delta Plan (<http://deltacouncil.ca.gov/sites/default/files/2015/09/Appendix%201B.pdf>) and B) documentation of adequate resources to implement the proposed adaptive management plan.

Please contact Eva Bush (Eva.Bush@deltacouncil.ca.gov) of the Delta Science Program for additional consultation and guidance to help with the appropriate application of best available science and adaptive management.

Response

The comment suggests modifying the mitigation measures included in the Draft EIS/EIR to be consistent with the Delta Plan Program EIR and potentially incorporate additional mitigation. Reclamation and DWR reviewed the Delta Plan Mitigation Monitoring and Reporting Program, and the measures in this EIS/EIR are generally consistent with the Delta Plan. Incorporating additional mitigation measures (or modifying proposed measures) is not necessary because the mitigation measures in the Draft EIS/EIR reduced impacts to less than significant impacts (for most resources). For the resources where significant impacts remain, the mitigation measures in the Delta Plan Program EIR would not further reduce those impacts. The Final EIS/EIR includes a Mitigation Monitoring and Reporting Program, Appendix P, as required by CEQA. It also includes a discussion that documents the use of best available science in Chapter 3 and an Adaptive Management Plan. If the selected alternative meets the criteria for a covered action, DWR will coordinate with the Delta Stewardship Council with regard to the policies identified.

Comment SA05-4

Comment

Restore Habitat in a Manner Consistent with the Delta Plan: The Draft EIS/EIR identifies Alternative 1 as the preferred project, as such, activities described in the Draft EIS/EIR will occur north of the Delta. These activities will affect flows, fish, and water quality downstream in the Sacramento-San Joaquin Delta by allowing up to 6,000 cfs to flow through the east side gated notch to provide open channel flow for adult fish passage. Delta Plan Policy ER P1 (23 Cal. Code Regs. section 5005) calls for maintaining Delta flow objectives and states that the State Water Resources Control Board's Bay Delta Water Quality Control Plan flow objectives, at the time your Project files for consistency, shall be used to determine consistency with the Delta Plan.

The Draft EIS/EIR describes the project area including the Yolo Bypass in Sacramento, Solano, Sutter, and Yolo counties. Additionally, the Draft EIS/EIR illustrates the project area in Figure ES-1 as encompassing the entire Yolo Bypass Priority Habitat Restoration Area (PHRA). Delta Plan Policy ER P3 (23 Cal. Code Regs. section 5007) calls for protecting opportunities to restore habitat within the PHRAs depicted in Appendix 5 of the Delta Plan. As described in 23 Cal. Code Regs. section 5006, significant adverse impacts to restore habitat must be avoided or mitigated. In the event that mitigation is warranted, those mitigation and minimization measures should be consistent with those identified in the Delta Plan Program EIR or substitute mitigation measures that are equally or more effective.

(<http://deltacouncil.ca.gov/sites/default/files/2015/09/Appendix%205.pdf>)

Response

It should be recognized that DWR identified Alternative 1 as the preferred alternative in the Draft EIS/EIR. CEQA case law requires that the lead agency identify which alternative is preferred during public review. NEPA requires an agency to identify a preferred alternative in a draft EIS if it exists, but Reclamation did not have a preferred alternative at that time. Reclamation has identified Alternative 1 as the preferred alternative in the Final EIS/EIR. Therefore, based upon comments received during the public review process and further

coordination with the regulatory agencies, another alternative could be selected. Pertaining to the comment, “In the event that mitigation is warranted, those mitigation and minimization measures should be consistent with those identified in the Delta Plan Program EIR or substitute mitigation measures that are equally or more effective,”

(<http://deltacouncil.ca.gov/sites/default/files/2015/09/Appendix%205.pdf>) the Delta Plan does permit substitute mitigation measures as long as the substitute measures are equally or more effective.

Comment SA05-5

Comment

Delta Plan Policy ER PS (23 Cal. Code Regs. section 5009) requires that nonnative invasive species be fully considered and avoided, or mitigated in a way that appropriately protects the ecosystem when improving habitat conditions. For example, an invasive species management plan shall be developed and implemented for any project that may lead to invasive species establishment. Analysis on this matter should address both nonnative wildlife species as well as terrestrial and aquatic weeds. In the event that mitigation is warranted, those mitigation and minimization measures should be consistent with those identified in the Delta Plan Program EIR (sections 4-1 through 4-5) or substitute mitigation measures that are equally or more effective.

Response

Mitigation Measure MM-TERR-1 (Implement BMPs for the Management of Invasive Plants) in Section 9.3.3.2.1 includes development of an invasive plant management plan prior to construction.

Comment SA05-6

Comment

Land Use: Delta Plan Policy DP P2 (23 Cal. Code Regs. section 5011) states that water management facilities, ecosystem restoration, and flood management infrastructure must be sited to avoid or reduce conflicts with existing or planned uses when feasible, considering comments from local agencies and the Delta Protection Commission. The project area overlaps with the Yolo Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) which is nearing completion. Council Staff recommend continued coordination with the Yolo Habitat Conservancy as the HCP/NCCP is completed and implemented.

Response

Reclamation and DWR will continue coordination with the Yolo Habitat Conservancy. Reclamation and DWR reviewed the Final Yolo HCP/NCCP and the project is consistent with the provisions of that document.

Comment SA05-7

Comment

Risk Reduction: The Delta Plan contains two policies that are relevant to DWR's consideration of this issue: Policy RR P2 (23 Cal. Code Regs. section 5013) requires flood protection for residential development in rural areas; Policy RR P4 (23 Cal. Code Regs. section 5015) restricts encroachments in floodplains, including the Yolo Bypass within the Delta. Policy RR P4 states that no encroachment shall be allowed or constructed unless it can be demonstrated by appropriate analysis that the encroachment will not have a significant impact on floodplain values and functions.

Response

The intent of this EIS/EIR is to identify potential impacts associated with the proposed project. No significant impacts on the floodplain were identified.

Comment SA05-8

Comment

Delta Plan Recommendations

The Delta Plan contains 74 recommendations, which we encourage project proponents to consider as they design and implement their projects and programs. Although these recommendations are non-regulatory in nature, progress towards their implementation will help with achieving the coequal goals in a manner that protects and enhances the unique values of the Delta. The following recommendations may be relevant to your project.

Recreation: Delta Plan Recommendation DP R11 encourages water management and ecosystem restoration agencies to provide new and protect existing recreation opportunities.

Response

Delta Plan information has been added to the regulatory setting of Chapter 13, *Recreation*.

Comment SA05-9

Comment

Protect Beneficial Uses: Delta Plan Recommendation WQ R1 calls for maintaining water quality in the Delta at a level that supports, enhances, and protects beneficial uses identified in the applicable State Water Resources Control Board or regional water quality control board water quality control plans.

Response

CalSim II modeling indicates negligible changes to Delta water quality resulting from this project. Additional text has been added to Chapter 6 explaining these model results and the negligible impacts.

Comment SA05-10**Comment****Closing Comments**

The Council is supportive of the Project and its efforts to promote the recovery of listed species and improve fish passage within and through the Yolo Bypass. As you proceed in the next stages of your Project's approval process, Council staff are available through early consultation to continue to discuss your Project's consistency with the Delta Plan. I encourage you to contact Ron Melcer (Ronald.Melcer@deltacouncil.ca.gov) or Megan Brooks (Megan.Brooks@deltacouncil.ca.gov) or my staff with any questions.

Response

See Response to Comment SA05-1.

Local Agencies and Local Elected Officials**Comment Letter LA01, Melinda Terry, California Central Valley Flood Control Association****Comment LA01-1****Comment**

The following comments on the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project Draft EIR/EIS are submitted on behalf of the California Central Valley Flood Control Association (CCVFCA/Association).

CCVFCA was established in 1926 to promote the common interests of rural and urban local flood management agencies sharing in the responsibilities associated with reducing the risks of flooding in the Sacramento and San Joaquin Rivers and their tributaries, including the Delta. Today, CCVFCA is the premier flood protection advocacy organization comprised of over 75 members with a wide spectrum of flood control expertise: reclamation districts conducting surface drainage and routine levee maintenance; cities and counties managing stormwater and levee systems; regional agencies constructing urban flood control improvements; and associated consulting firms.

Project Purpose

On June 4, 2009 the National Marine Fisheries Service (NMFS) issued its Biological Opinion and Conference Opinion on the Long-Term Operations of the Central Valley Project and State

Water Project (BiOp) that concluded if left unchanged, the SWP and CVP operations were likely to jeopardize the continued existence of four federally-listed anadromous fish species. Subsequently, the Department of Water Resources (DWR) and the Bureau of Reclamation (USBR) have issued their Fish Restoration Program Agreement Implementation Strategy (FRPA) to create aquatic habitat and fish passage improvements in the Delta as part of their requirement to maintain ESA incidental take permits for the operation of the SWP and CVP pumping facilities in the South Delta.

In order to comply with RPA I.6.1 and I.7 the BiOps and FRPA, this Yolo Bypass fish restoration project (Project) was initially included in the Bay Delta Conservation Plan (BDCP) as Conservation Measure 2 and is now one of the projects in the California EcoRestore Program. As such, this Project proposes significant alteration and encroachments to the most critical component of the Sacramento River Flood Control Project (SRFCP) to satisfy ESA objectives unrelated to the operation of the SRFCP.

The Yolo Bypass was designed and continues to operate as a key component of the State Plan of Flood Control, but also allows compatible uses such as agricultural production, recreation, wildlife habitat, and recreation. Physical modifications to the functionality, capacity, operation, and purpose of this important flood facility must be compatible with the flood system and not hamper Operation & Maintenance (O&M) of the adjacent and downstream levees.

Response

The EIS/EIR analyzes potential effects to flood operations in Chapter 4 and did not identify significant impacts to flood management from the action alternatives.

Comment LA01-2

Comment

Flood Protection

In 1953, the SPFC works were transferred to California with a memorandum of understanding (MOU) confirming the State's obligation to operate and maintain all completed works/facilities and to hold the federal government harmless. [1953 Memorandum of Understanding (USACE and The Reclamation Board, 1953) and Supplements. Available at ftp://ftp.water.ca.gov/mailout/CVFPB%20Outgoing/Orientation%20Materials/Item%203C%20-%20LM%20Assurance%20Agreements/Example%201%20-%20srfc_mou_1953%20--%20jsp%20copy.pdf.] In addition, the State has signed assurance agreements with the U.S. Army Corps of Engineers (USACE) to maintain the San Joaquin River Flood Control Project in accordance with the 1955 MOU.

Jurisdiction and authority throughout the drainage basin and for the 1.7 million acres within the state's Sacramento and San Joaquin Drainage District (SSJDD) is the responsibility of the Central Valley Flood Protection Board (CVFPB/Board). [Authority rests in the Flood Protection Board pursuant to assurance agreements with the USACE and the USACE Operation and Maintenance Manuals under Code of Federal Regulations, Title 33, Section 208.10 and United States Code, Title 33, Section 408] Created by State legislation in 1913, the SSJDD holds the property rights on about 18,000 parcels of SPFC lands, some going back to 1900. [Central Valley

Flood Protection Board webpage, "Sacramento-San Joaquin Drainage District Jurisdiction Maps." Available at http://www.cvfpb.ca.gov/cvfpb/ssjdd_maps/] Annual inspections of the SPFC levee system are conducted twice annually by DWR. [2013 Inspection and Local Maintaining Agency Report of the Central Valley State-Federal Flood Protection System (providing that "DWR, under the authority of Water Code § 8360, § 8370, and § 8371, performs a verification inspection of the maintenance of the SRFCP levees performed by the local responsible agencies, and reports to the USACE periodically regarding the status of levee maintenance accomplished under the provisions of Title 33, Code of Federal Regulations (CFR), Section 208.10. While there are no specific water code provisions directing DWR to inspect and report on Maintenance of the San Joaquin River Flood Control System, DWR has performed inspections and provided reports for many years as a matter of practice that is consistent with Title 33, CFR.") Available at http://cdec.water.ca.gov/current_reports.html.]

This comprehensive interconnected system of levees and channel bypasses is absolutely critical to public health and safety, including the protection of the region's transportation, agriculture, business, homes, and even water conveyance. [DWR A Framework for Department of Water Resources Integrated Flood Management Investments in the Delta and Suisun Marsh (September 24, 2013)] Levees in the Yolo Bypass provide this protection at all times, during two daily high tides and seasonal high-flow events.

Under California law, no modification to the SPFC system (encroachment or project) may be constructed on or near the Sacramento and San Joaquin Rivers or their tributaries until plans have been reviewed and the projects have been approved or a permit issued by the CVFPB. [Central Valley Flood Protection Board, A Century of Progress: Central Valley Flood Protection Board 1911-2011 (2011). Available at http://www.cvfpb.ca.gov/Publications/DWR100Years_05.pdf] The Board authorizes use of the SPFC facilities by issuing encroachment permits only if the project is compatible with the flood system and will not hamper the State's O&M responsibilities.

Response

DWR will seek an encroachment permit from the Central Valley Flood Protection Board if required for implementation of the selected alternative.

Comment LA01-3

Comment

Unmitigated Hydraulic/Hydrology Impacts

The alteration of hydrodynamics in the Yolo Bypass through implementation of RPA I.6.1 and I.7 (Project) pose a potential threat to the integrity and function of the SRFCP. The floods of 1986 and 1997 clearly demonstrate that the Yolo Bypass currently cannot spare even an incremental interference with its flood control function. According Reclamation District 2068, at the southern end where the Bypass narrows into a funnel, the water was a little over 2 feet above the design flow in both the 1986 and 1997 flood events.

The EIR/EIS acknowledges that larger areas within the Yolo Bypass would experience increased depth and inundation under low flow conditions for longer periods of time on a more frequent

basis, however, the EIR/EIS fails to analyze the increased vegetation growth that will occur in areas with more frequent and longer duration inundation and how the vegetation would impede or redirect flood flows in the bypass or unreasonably increase water surface elevations.

More frequent inundation of the Bypass when the Sacramento River is not at flood stage will result in growth of vegetation in the flood channel, therefore increasing the State's maintenance costs and reducing flood flow coefficients. Unfortunately, The EIR/EIS fails to provide specific mitigations to alleviate the impacts to bypass/channel capacity of flood flows or additional maintenance costs on the local agencies managing the surrounding project levees.

Response

The potential for action alternatives to result in an increase in recruitment of additional vegetation is addressed in the terrestrial biology section (Chapter 9). The action alternatives have the potential to increase vegetation because they would increase the amount of water within the Yolo Bypass; however, most of the water would be in the channel system. "Maintenance activities would include removing vegetation and debris from the project channels annually. Grasses and woody vegetation would be allowed to remain in the channels unless it becomes an obstruction to flow within the passage channel." If there is an obstruction to flow within the passage channel, the impediment would be removed (Chapter 2 includes a description of maintenance activities including channel clearing and sedimentation removal). Inundation outside of the channels would increase the wetted period on land by an average of about one to three weeks. There is not expected to be a substantial change to vegetation communities or increase in the amount of vegetation resulting from inundation operations.

The hydrology section (Chapter 4) of the EIS/EIR (including the associated appendices) evaluated existing conditions, the No Action Alternative, and each action alternatives' effects on floodwater capacity and found that there were no significant impacts associated with any of the alternatives' implementation. As discussed above, DWR will seek an encroachment permit from the Central Valley Flood Protection Board if required for implementation of the selected alternative.

See also Master Response 4: Impacts to Landowners and other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment LA01-4

Comment

The EIR/EIS should analyze the hydraulic impacts from increased vegetation growth within the bypass and develop a vegetation management plan and provide funding to the State for channel maintenance as mitigation. Additional mitigations would be funding levee improvements to provide more freeboard by raising the height of certain levees to accommodate any increases in water surface elevations resulting from reduced flood flow capacity due to increased vegetation growth.

Response

See Response to Comment LA01-33 and Master Response 4: Impacts to Landowners and other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment LA01-5

Comment

We specifically request that the Project Proponent consult with the Central Valley Flood Protection Board (CVFPB) regarding the RMA2 two-dimensional model developed for the Sutter Bypass [Sutter Bypass Two Dimensional Hydraulic Modeling Project.] and the more than 20 modeling simulations with a dense network of 47,000 grid cells representing the underlying surface with a unique elevation and 1 of 23 vegetative cover or land use conditions presented in an October 2013 technical memorandum. [“Sutter Bypass Two Dimensional Hydraulic Modeling: Simulation of Potential Management Options, Technical Report, prepared for Central Valley Flood Protection Board by CH2MHill, October 2013.] The RMA 2 is a two-dimensional, depth-averaged finite element hydrodynamic numerical model capable of calculating water surface elevations and horizontal velocity components for flow in two dimensions. The CVFPB developed the model in order to analyze the impacts of the vegetation in the Sutter National Wildlife Refuge on the carrying capacity of flood water in the Sutter Bypass.

Model simulations using the RMA2 model were performed with various vegetation conditions to determine the maximum water surface elevations. Five vegetation conditions were simulated:

1. Bare Soil (Minimum Roughness)
2. Existing Conditions
3. Vegetation Fully Grown (Maximum Roughness)
4. Vegetation Management
5. Structural Modifications.

The five conditions were simulated using the Sacramento River Flood Control Project (SRFCP) 1957 design flows in seven different locations.

Because implementation of the Yolo Bypass Fish Restoration Project, RPA I.6.1 and I.7, would likely result in increase vegetation growth within the bypass, the project proponents should use the CVFPB’s two-dimensional model with grid data for the Yolo Bypass to provide modeling results and provide an analysis and mitigation measures in the Final EIR/EIS for any significant impacts to carrying capacity of floodwater in the Yolo Bypass. Included in the Final EIR/EIS analysis should be disclosure of whether there are any portions of the Yolo Bypass that cannot currently pass the 1957 design flow at the design stage (Existing Conditions).

Development of the two-dimensional hydraulic model was done with the aid of the Surface water Modeling System (SMS) and calibration was based on the recorded flow and stage information from the January 2006 flood event. These calibration adjustments were made to refine the estimated roughness coefficients up or down to modify the impedance of vegetation on the flow and thereby influence the computed water surface elevations.

Much of the modeling information had been assembled previously for the development of the U.S. Army Corps of Engineers (USACE) Common Features Sacramento River Basin HEC-RAS model (Release 3, February 2011), which provided a one-dimensional representation of the broader flood control system but included stage and flow data useful for the development of the Sutter Bypass Two Dimensional Hydraulic Model. The high water mark data were valuable to establish general trends in the water surface profiles and to isolate areas of abrupt changes in water surface elevations.

The Tech Memo provides modeling results detailing predicted water level, freeboard to existing levee crest elevations, and a relative freeboard termed “Freeboard Deficiency” which relates the existing freeboard to that which existed in 1957 at the time when the USACE turned over management of the bypass channel to the State of California. The vegetative cover in the model simulations was represented with a roughness coefficient and varied in relation to the level of resistance to flow each vegetation type created.

Response

See Response to Comment LA01-3.

Comment LA01-6

Comment

The Association requests new hydraulic modeling using the RMA2 model be conducted for the Yolo Bypass and that the EIR/EIS be revised to analyze and mitigate identified impacts to flood flow capacity within the bypass due to increased vegetation growth that impedes flood flows or increases water surface elevations that encroach on the existing levee freeboard, and recirculate the EIR/EIS for additional public review and comment.

Response

See Response to Comment LA01-3. Additionally, it should be noted that CEQA and NEPA do not require a lead agency to conduct every test or perform all research, study, and experimentation recommended or demanded by commentors (State CEQA Guidelines Section 15204; 40 CFR 1503). CEQA requires an EIR to be recirculated for public review if "significant new information" is included, as that term is defined in Section 15088.5(a) of the CEQA Guidelines. NEPA requires a supplemental document when there are substantial changes to the action or “significant new circumstances or information relevant to environmental concerns” (40 CFR 1502.9). As a result of the public comments received, the Lead Agencies have made revisions to the EIS/EIR. These revisions include updating the affected environment with additional data now available and clarifying mitigation measures. The revisions do not constitute substantial changes or significant new information under CEQA or NEPA and recirculation or supplementation is not necessary.

Comment LA01-7**Comment**

Attachment: CVFPB Technical Memorandum, “Sutter Bypass Two Dimensional Hydraulic Modeling: Simulation of Potential Management Options,” prepared by CH2MHill, October 2013.

Response

See Response to Comment LA01-3.

Comment LA01-8**Comment**

Attachment: MBK Technical Memorandum on Sutter Bypass Hydraulic Model Development and Analysis, December 16, 2016

Response

See Response to Comment LA01-3.

Comment Letter LA02, Leah Orloff, Contra Costa Water District**Comment LA02-1****Comment**

Contra Costa Water District (CCWD) appreciates the opportunity to comment on the Draft Environmental Impact Statement/Environmental Impact Report for the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project (DEIR/EIS). CCWD supports habitat restoration in the Delta, but we are concerned that the environmental impacts of the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project (the Project) have not been fully and properly evaluated. CCWD provides water diverted at its four intakes in the Sacramento-San Joaquin Delta to approximately 500,000 people in Contra Costa County. Small changes in water quality at CCWD intakes, even in the absence of water quality objective violations, can impact operations, water supply, and the water quality served to customers. CEQA guidelines require that such impacts be analyzed both on a project and cumulative basis. The assessment of the potential water quality impacts of the Project in the DEIR/EIS is not adequate, so the DEIR/EIS does not fully disclose the potential environmental impacts of the Project and does not offer appropriate mitigation. The following deficiencies in the DEIR/EIS must be corrected. The DEIR/EIS does not include an explicit evaluation of potential water quality impacts such as changes in compliance with water quality objectives set by the State Water Resources Control Board Decision 1641, changes in the position of X2, changes in upstream reservoir releases needed to meet water quality objectives, and changes in salinity at Delta drinking water intakes, including increases in salinity that could otherwise substantially degrade water quality in the

absence of standards violations. The DEIR/EIS indicates that models were run that could have enabled the project proponents to evaluate changes in Delta water quality, but such an analysis was not included in the document.

Response

CalSim II modeling was used to estimate potential impacts or changes to water quality throughout the project area. These results have been summarized within the document. CalSim II results indicate small impacts on water flow within the Delta region (less than three percent during wet periods). The results of this modeling could be used to complete a model run using the DSM2 water quality model, which would provide changes ability to meet D-1641 water quality objectives. DSM2 uses input from CalSim II to show how flow changes affect water quality. The small changes in CalSim II indicate additional Delta modeling is not required, as changes in water quality conditions from DSM2 would also result in small changes. Additional text has been added to Chapter 6, *Water Quality*, to discuss Delta water quality.

Comment LA02-2

Comment

The Project has the potential to have significant impacts on CCWD's water supply and water quality even in the absence of water quality objective violations. The California Natural Resources Agency has commissioned a modeling study to quantify the potential cumulative effects that the Project and other Eco Restore projects may have on Delta salinity. The preliminary results from the modeling study indicate that there may be cumulative impacts to Delta salinity. The Project's impact assessment should include the results of the salinity modeling study. If the modeling and water quality analysis described above reveals such impacts, they must be avoided or mitigated.

Response

The salinity modeling study is not yet available for review; however, as discussed in the response to LA02-1, CalSim II modeling for this EIS/EIR indicates negligible changes in Delta flows (that would drive changes in water quality). As a result, this project is not expected to have cumulatively considerable impacts on Delta water quality. Discussion has been added to Chapter 6 regarding these negligible impacts to Delta water quality.

Comment LA02-3

Comment

The Project should select a design configuration that minimizes salinity increases in the Delta.

Response

Reclamation and DWR will consider the comments on the environmental impacts of the alternatives received on the Draft EIS/EIR when making a decision on the alternative to

implement. Reclamation and DWR are committed to meaningful stakeholder involvement and appreciate thoughts and feedback on the alternatives, but the final decision on the alternative to implement will be made by Reclamation and DWR. Salinity impacts of the alternatives are discussed in Chapter 6, *Water Quality*, Section 6.3.3.

Comment LA02-4

Comment

The Project may also contribute to significant cumulative impacts on CCWD caused by impacts to water quality at CCWD's intakes. Significant cumulative water quality and supply impacts could be avoided if habitat restoration projects throughout the Delta are sequenced so that there is no net significant water quality degradation at any time. If the significant water quality impacts cannot be fully mitigated by alterations of the habitat design, and coordinating the implementation schedule of the Project with other restoration projects, additional mitigation must be identified to ensure the impacts are fully mitigated.

Response

CalSim II modeling indicates negligible changes to flows in the Delta as a result of Project operations. Additional information has been added to Chapter 6 to characterize potential water quality impacts within the Delta, including a cumulative analysis of these impacts.

Comment Letter LA03, Patrick Blacklock, County of Yolo

Comment LA03-1

Comment

This letter describes the County of Yolo's ("County") principal concerns with the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project ("Yolo Bypass Salmonid Project") Draft Environmental Impact Statement/Environmental Impact Report ("EIS/EIR"). Additional comments are also included in a table enclosed with this letter (Attachment 1).

I. INTRODUCTION

Yolo County appreciates the efforts made by California Department of Water Resources ("DWR") and the U.S. Bureau of Reclamation ("Bureau") to study the impacts of a project of this magnitude. The County's concerns with the EIS/EIR mainly relate to some aspects of the analysis of the project's potential impacts on the existing uses and functions of the Yolo Bypass. The long-term sustainability of agriculture is a leading concern because of the economic, habitat and flood protection benefits of Yolo Bypass agriculture, as the County has expressed repeatedly for nearly a decade. Maintaining the flood protection and conveyance functions of the Yolo Bypass are also leading concerns, along with potential impacts to terrestrial species habitat and the rich educational and recreational opportunities the Yolo Bypass affords the residents of Yolo County and California.

Response

Responses have been provided to all detailed comments in the submitted comment letter.

Comment LA03-2

Comment

The County's comments focus on these concerns and the analysis of related environmental and other effects of the project in the EIS/EIR. This letter and the accompanying table identify shortcomings in the analytical content of the EIS/EIR and, where possible, offer recommendations for consideration. The County also incorporates herein by this reference the comment letters including attachments) of the Yolo Basin Foundation (Attachment 2) and the Yolo Habitat Conservancy (Attachment 3), as well as a letter submitted by the six local agencies participating in the Regional Flood Management Plan effort for the Lower Sacramento/Delta North Region. While Yolo County highlights comments from these organizations in this letter, the references to specific comments does not indicate a lack of support for the comments submitted by these organizations in their entirety.

Response

This EIS/EIR includes responses to all comments received. The main body of the EIS/EIR has been edited to address comments, as discussed in these responses to comments.

Comment LA03-3

Comment

Despite the relatively short comment period following the release of the EIS/EIR in late-December, the County has attempted to thoroughly review the document and provide all relevant comments. The County is nonetheless disappointed that your agencies could not accommodate our request (and similar requests by numerous other entities) for a short extension of the comment period, particularly given the timing of the document release and the long delay preceding publication of the Federal Register notice (which eroded the original 90-day comment period to a timeframe that only slightly exceeded the statutory minimum). At least some of the problems identified in the County's comments will require further analysis and—in all likelihood—substantial revisions to the EIS/EIR and recirculation for additional public review. The County reserves the right to provide additional comments on the legal adequacy of the EIS/EIR prior to agency action on the proposed project.

Response

The amount of time provided for review of, and comment on, the Draft EIS/EIR is in accordance with the requirements of NEPA and CEQA. In addition, comments on the Draft EIS/EIR received after the end of the comment period were reviewed and addressed in this appendix.

Comment LA03-4**Comment****II. ENVIRONMENTAL AND PUBLIC POLICY CONSIDERATIONS.**

In preparing its comments on the EIS/EIR, the County was keenly aware of the environmental and public policy considerations that have influenced project planning efforts over the past decade. The project's intended role in addressing the 2009 Biological Opinion and the ongoing ecological crisis in the Delta estuary is well-documented and needs no elaboration here.

Similarly, the role of the Yolo Bypass in regional flood protection and the characteristics of its existing setting—including a diverse agricultural industry, wetlands and terrestrial species habitat, and educational and recreational opportunities—are also values that receive recognition and protection in many local, state, and federal laws and policies.

Response

The purpose and need/project objectives focus on addressing the requirements in the NMFS 2009 BO, but Reclamation and DWR recognize the importance in minimizing impacts to other resources in the Yolo Bypass (including agriculture, wetlands, education, and recreation). These resources are analyzed in the EIS/EIR and also included in the evaluation criteria for alternatives (see Chapter 2 and Appendix A).

Comment LA03-5**Comment**

For much of the past decade, discussions around the project have focused on how it can be integrated into the Yolo Bypass in a manner that sustains these values. The County's April 5, 2010 letter (Attachment 4) framed this question and set the foundation for the County's subsequent engagement in project planning efforts and related discussions. In turn, a February 25, 2014 letter from Secretary John Laird of the California Natural Resources Agency ("CNRA") (Attachment 5) reinforced the importance of sustaining the existing values of the Yolo Bypass in the course of implementing Conservation Measure 2 of the Bay Delta Conservation Plan ("BDCP") and expressed several objectives that remain relevant today with respect to the project. For example:

- The opening paragraph of the letter concludes by stating: "It is the Natural Resource Agency's goal to continue balancing the need of the BDCP to enhance habitat for covered species with the existing uses of the Yolo Bypass such as agriculture, waterfowl and other terrestrial species habitat, bird watching, hunting, and other recreation."
- The letter recognizes concerns expressed with "late season flooding" and expresses optimism that "the frequency and acreage affected by late flows could be managed well enough such that current land uses in the Yolo Bypass would be largely maintained."
- Further, the letter acknowledges the uncertainties associated with project operation will be "addressed through the adaptive management and monitoring program of the BDCP, a process in which we expect Yolo County will have a significant level of involvement."

- Finally, the letter concludes by expressing the state’s interest in developing a memorandum of understanding with the County on issues such as “. . . 1) funding for county participation in BDCP planning and implementation; 2) mitigation for the loss of farmland and economic impacts; 3) assurances and benefits for the Yolo Bypass Wildlife Area; and 4) other topics as needed.”

Today, a fundamental question is whether the proposed project is designed and capable of implementation in a manner that will achieve the shared objectives of the County and CNRA (and presumably, DWR and the Bureau). The County’s view is that efforts over the three years following Secretary Laird’s letter have brought the project closer to realizing many of the outcomes described therein. But the effort is not yet complete. Several key areas of uncertainty and potential conflict remain, particularly with regard to the remaining potential for project impacts on Yolo Bypass agriculture and wetlands, including endangered and threatened terrestrial species habitat.

Response

Reclamation and DWR recognize the importance in minimizing impacts to other resources in the Yolo Bypass (including agriculture, wetlands, education, and recreation). These resources are analyzed in the EIS/EIR and also included in the evaluation criteria for alternatives (see Chapter 2 and Appendix A). Additionally, as described in Appendix A, the operating parameters of the alternatives were developed to minimize impacts to agricultural resources and wetlands (based on stakeholder feedback). See Master Response 3 (Inundation Period) for more information on the operational dates.

Comment LA03-6

Comment

Given the uncertainty associated with the benefits to fish of the proposed project as discussed in this letter and the remaining potential for impacts (as well as the high level of uncertainty) to existing Yolo Bypass land uses, Yolo County recommends working with stakeholders to craft a preferred alternative that limits inundation to 3,000 cfs or less and ends inundation March 7th or earlier. The development of such an alternative, as well as the application of additional mitigation measures (or related actions, such as a voluntary intergovernmental agreement as contemplated by Secretary Laird), a robust adaptive management process, and an inclusive governance structure, could build on the extensive progress made over the years to deliver a landmark environmental restoration project that also achieves the intergovernmental collaboration necessary to accomplish future projects of a similarly ambitious scale.

Response

Benefits to the target species of the proposed project are well documented. For more information on benefits of the action alternatives, see Master Response 1: Fish Benefits. Alternative 4 includes key features described in the comment, and was developed through Reclamation and DWR’s extensive efforts to involve stakeholders in the planning and environmental review process. Chapter 2 summarizes stakeholder involvement in identifying Alternative 4, and Appendix A describes this process in more detail. The Yolo Bypass Working Group, a collection

of resource agencies, landowners, non-governmental organizations, and stakeholders, originally suggested Alternative 4 for consideration and provided information that was considered during the environmental review process. The comment also asks for additional implementation considerations, including governance structure, that will be developed for the preferred alternative as part of the implementation phase.

Reclamation and DWR will consider the comments on the environmental impacts of the alternatives received on the Draft EIS/EIR when making a decision on the alternative to implement. Reclamation and DWR are committed to meaningful stakeholder involvement and appreciate thoughts and feedback on the alternatives, but the final decision on the alternative to implement will be made by Reclamation and DWR.

Comment LA03-7

Comment

III. SPECIFIC COMMENTS ON THE EIS/EIR

As noted above, the County has included a long list of specific comments in Attachment 1. The following discussion incorporates some of those comments (often in summary form) to highlight issues of particular concern for consideration by your agencies. Each chapter of the EIS/EIR is addressed sequentially below, excepting only a handful of chapters that are covered exclusively in Attachment 1.

Executive Summary

- **Comment ES-1: Issue of Known Controversy.** CEQA requires that the EIR address areas of controversy and issues to be resolved (CEQA Guidelines Section 15123(b)(2) and (3)). Page ES-17 and Section 23-9 make no mention of concerns raised by multiple stakeholders, including Yolo County (beginning in its April 4, 2010 letter, mentioned above) and the Yolo Habitat Conservancy among others, that the project is designed and analyzed with only superficial consideration of consistency with the impending Yolo HCP/NCCP. These discussions also fail to identify that as proposed the project will potentially adversely affect the success of the HCP/NCCP by potentially limiting the number of giant garter snake and other habitat conservation easements available for purchase in the Yolo Bypass. Please expand these sections to include an adequate discussion of these areas of controversy and issues to be resolved.

Response

Sections ES.7, 1.6, and 23.9 have been updated to include these additional concerns.

Comment LA03-8

Comment

Chapter Three: Approach to the Environmental Analysis

- **Comment 3-1: Alternatives Analysis.** The EIS/EIR does not clearly recognize that the requirements for alternatives analysis under CEQA are substantively different from the requirements for alternatives analysis under NEPA. For CEQA the proper point of comparison for alternatives is the Proposed Project/Preferred Action/Alternative 1 (CEQA Guidelines Section 15126.6(d)). Under NEPA the proper point of comparison for alternatives is the No Project/No Action Alternative. This distinction is not consistently apparent in the EIS/EIR, yet is required by law. Please revise the EIS/EIR to clearly reflect this analysis and conclusions, and recirculate the document to allow stakeholders such as the County to properly consider the analysis and results.

Response

Section 3.2.1, NEPA and CEQA Requirements, describes how the environmental analysis under NEPA and CEQA differ, including the use of different baselines for comparison. As described in Section 3.2.1, for CEQA the baseline for determining significance is the environmental setting, as described in CEQA Guidelines Section 15125(a) ("An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant.") Sections ES.8 and 2.10 contain a table summarizing the impacts analysis and mitigation measures under CEQA and NEPA, including quantitative and qualitative differences between alternatives compared to their baselines. This table meets the requirements of CEQA Guidelines Section 15126.6(d), "A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison." Also, for all impacts relevant to CEQA analysis, the resource chapters include a specific "CEQA Conclusion" subsection. Where the NEPA and CEQA baselines for analysis are different, the resource chapters identify and discuss this in the "Environmental Consequences" subsection.

Comment LA03-9

Comment

Chapter Four: Hydrology, Hydraulics, and Flood Control

Comment 4-1: No evaluation of impact of increased flows leading to natural recruitment of riparian vegetation. The EIS/EIR discusses, but does not analyze, the impact of increased flows leading to natural recruitment of riparian vegetation. The analysis should evaluate a baseline for woody vegetation along the Tule Canal and Toe Drain and the project should have an operation and maintenance element that maintains this vegetation annually. The impacts should be evaluated as part of the project so that at the time the maintenance is conducted, mitigation for potential impacts to listed species is not required. The Section 7 and CESA consultation should also cover this activity.

Response

The action alternatives include vegetation removal and sediment removal; therefore, they do not need to be included as a mitigation measure. DWR and Reclamation recognize that regulatory permission for the projects's O&M activities may be necessary and can be time-consuming. DWR is working with the regulatory agencies to develop a permitted O&M effort through its Environmental Permitting for Operation and Maintenance effort (DWR 2017).

As noted in Sections 9.3.3.2.2, 9.3.3.2.3, and 9.3.3.2.5, maintenance effects (including vegetation removal and removal of sediment) on valley elderberry longhorn beetle, giant garter snake, and nesting bird species would be significant. Mitigation Measures MM-TERR-7 (Conduct Valley Elderberry Longhorn Beetle Habitat Surveys Prior to Construction and Maintenance), MM-TERR-12 (Implement Giant Garter Snake Avoidance and Minimization Measures), MM-TERR-14 (Compensate for the Loss of Giant Garter Snake Aquatic and Upland Habitat), and MM-TERR-16 (Conduct Surveys Prior to Construction and Maintenance Activities for Nesting Birds, Establish Nest Buffers, and Monitor Active Nests) would reduce these impacts to less than significant.

Comment LA03-10**Comment**

Chapter Six: Water Quality

- Comment 6-1: Inadequate mitigation for methylmercury impacts. In general, the County recognizes the difficulty of predicting project effects on methylmercury production in Bypass sediments and related environmental effects described in portions of Chapter 6. This difficulty is appropriately described in Chapter 6 and, along with other factors, cited as the basis for the “significant and unavoidable” impact conclusion in the discussion of Impact WQ-2. However, the mitigation offered for this impact (MM-WQ-4) is described in a cursory and vague fashion without any objective standards for the performance of “frequent sampling and reporting” or “coordinat[ing] with the implementation of the current TMDLs for various constituents of concern within the Yolo Bypass.” Other aspects of MM-WQ-4 are similarly cryptic and undefined. This mitigation measure must be substantially revised and clarified with respect to methylmercury and other pollutants described in Chapter 6.

Response

See Responses to Comments FA01-4 and FA01-5.

Comment LA03-11**Comment**

Chapter Eight: Aquatic Resources and Fisheries

To estimate the benefits to fish of the proposed Yolo Bypass Salmonid Project, DWR and the Bureau hired Cramer Fish Sciences to develop the Salmon Benefits Model. The Salmon Benefits Model simulates changes in annual size, size variation, ocean entry timing variation, and survival

of juvenile Chinook salmon emigrating through the Yolo Bypass and lower Sacramento River and Delta and resulting changes in adult returns by run. Such a model is difficult to develop because of the high level of uncertainty associated with assumptions. Yolo County worked with fish biologists to identify and document this uncertainty through a review of the scientific literature early in the project development process (Quiñones and Lusardi 2017, see Attachment 6). The Salmon Benefits Model also relies on the use of other models with inherent uncertainty in their assumptions, such as the Juvenile Entrainment Evaluation Tool (JEET), to estimate these parameters. As discussed below, Yolo County believes DWR and the Bureau's handling of this uncertainty is inadequate because the agencies did not present key information about the uncertainty or perform additional sensitivity analysis critical to the understanding of project benefits. As a result, the agencies likely overestimated the benefits to fish of the project in the analysis. The alternative models show that entrainment of fish into the Yolo Bypass may be quite low, thereby indicating the high costs of the project may not justify the benefits. More work is necessary to ensure the proposed project achieves significant benefits for fish.

Response

The SBM output is intended to be used for comparative purposes under the alternatives relative to existing conditions, and all model alternatives are evaluated using the same parameters. Although only the proportion of flow approach was used to simulate entrainment in the SBM, the proportion of flow entrainment approach provides a consistent methodology to apply to all Alternatives. For NEPA/CEQA purposes, it was important to have a tool that could consistently evaluate all alternatives using the same parameters. Please also see Master Response 1: Fish Benefits and Master Response 2 : Science Review Panel. The Science Review Panel report found “all of the selected approaches and tools appropriate for selecting a notch location and configuration.” See also discussion on additional items being prepared regarding improvements planned during the EIS/EIR phase to help with impact analysis and selection of an alternative for implementation.

Comment LA03-12

Comment

Comment 8-1: Reliance on Juvenile Entrainment Evaluation Tool ignores importance of the Eulerian-Lagrangian Agent Method and Critical Streakline Analysis as the best available tools for conducting impact assessments. Entrainment is perhaps the most important input variable that influences Salmon Benefits Model output and viable salmon population parameters conceptual model criteria under the different alternatives. Yet the EIS/EIR relies on the Juvenile Entrainment Evaluation Tool, the least robust of available entrainment models, as the source of entrainment estimates for the Salmon Benefits Model. On Page 60, paragraph 4 of Chapter 8, the EIS/EIR states “The requirements for conducting analyses under CEQA and NEPA include utilizing the best available information to conduct impact assessments.” To achieve this standard, the Juvenile Entrainment Evaluation Tool should (at a minimum) be used in concert with other entrainment estimates from the Eulerian-Lagrangian Agent Method (ELAM) and Critical Streakline Analysis because of the superiority of these tools and because these tools will provide some estimate of entrainment variance and increase confidence levels.

Response

Although only the proportion of flow approach was used to simulate entrainment in the SBM, the proportion of flow entrainment approach provides a consistent methodology to apply to all Alternatives. For NEPA/CEQA purposes, it was important to have a tool that could consistently evaluate all alternatives using the same parameters. The ELAM technical memorandum does not estimate total annual entrainment of each run, and the critical streakline analysis was not performed for each alternative. In addition, the evaluation of potential impacts requires comparison of conditions under an alternative relative to existing conditions or the No Action Alternative, and the proportion of flow approach is the only entrainment method available which simulates entrainment under existing conditions. Section 8.5.1 displays and describes entrainment differences among the three entrainment methodologies for each alternative where feasible, and describes associated expected qualitative differences in SBM output based on critical streakline entrainment estimates relative to proportion of flow entrainment estimates. Please also see Master Response 1: Fish Benefits and Master Response 2 : Science Review Panel.

Comment LA03-13**Comment**

ELAM and Critical Streakline Analysis represent the best available tools to estimate entrainment of juvenile salmon resulting from the proposed project because: 1) the ELAM is based on hydraulic modeling and acoustically tagged fish movement to evaluate the proportion of juvenile Chinook salmon the project is predicted to entrain in the Yolo Bypass at particular flows; and 2) the Critical Streakline Analysis also evaluates entrainment potential at various notch locations based on modeling of hydraulic conditions and acoustically tagged fish tracks. The Juvenile Entrainment Evaluation Tool, on the other hand, relies on a simple hypothesis that entrainment is directly proportional to flow diverted onto the Bypass. (This hypothesis has not been tested and there is no empirical data to support the hypothesis of which the County is aware.) Further, it is generally recognized that an individual fish's position relative to the point of diversion will influence potential entrainment and fish do not evenly distribute throughout a channel due to secondary flow circulations (Lemasson et al. 2017, see Attachment 7). [Lemasson et al. 2017. Two-dimensional movement patterns of juvenile winter-run and late-fall-run chinook salmon at the Fremont Weir, Sacramento River, CA. US Army Corps of Engineers.]

Response

See Response to Comment LA03-12. Please also see Master Response 1: Fish Benefits. and Master Response 2 : Science Review Panel.

Comment LA03-14

Comment

According to the Yolo Bypass Salmon Habitat Restoration and Fish Passage Analytical Tool Review, a report by an independent science panel to the Delta Science Program of the Delta Stewardship Council in October 2017 (Attachment 8), these two models:

“Significant integration of the ELAM model with the Streakline tool had not yet occurred at the time of this review. While the Panel understands that the compressed schedule did not allow integration of the ELAM and Streakline projects, the Panel highly recommends that both groups integrate approaches and data to collaborate in providing guidance in finalizing the notch design, implementation and future monitoring.” (p. 21)

While the independent science panel appears to have agreed that the Juvenile Entrainment Evaluation Tool is sufficient to compare alternatives (a conclusion with which Yolo County disagrees), the panel made it abundantly clear that better modeling options exist and should be undertaken. The entrainment estimates and the output from the Salmon Benefits Model are therefore deficient if the analysis does not include use of ELAM and Critical Streakline Analysis.

Response

See Response to Comment LA03-12. Please also see Master Response 2: Science Review Panel.

Comment LA03-15

Comment

Comment 8-2: Did not include sensitivity analysis of rearing rule and rearing survival, and choice of model for entrainment in Public Review Draft EIS/EIR. DWR and the Bureau conducted sensitivity analysis at the request of Yolo County on key parameters in 2016 and 2017, such as percent of fish that will survive on the floodplain (rearing survival) and the length of time juvenile fish will remain on the floodplain (rearing rules). DWR and the Bureau reported the benefits to fish changed significantly with changes in these two assumptions in Salmon Benefits Model Appendix G4, Yolo Bypass Salmon Benefits Model: Modeling the Benefits of Yolo Bypass Restoration Actions on Chinook Salmon (Hinkelman et al., August 2017). On page 66, paragraph 3 of Chapter 8, the EIS/EIR states:

“Hinkelman et al. (August 2017) reported that although all the effects examined in the SBM have the potential to influence the fish benefit results of the alternatives, there is a particularly strong interactive effect of the rearing rule and rearing survival value. Hinkelman et al. (2017) recommended that the rearing rule and rearing survival assumptions be targets for additional investigations...”

Hinkelman et al. (2017) estimate rearing survival at 0.99, but the Hinkelman et al. evaluation showed benefits of rearing survival at .97 and .95 under Alternative 6 were too low or negligible to yield project benefits. Despite this finding, DWR and the Bureau did not conduct additional investigations regarding the sensitivity of the rearing rules and rearing survival on the fish benefits of the project prior to the release of the EIS/EIR. DWR and the Bureau could

incorporate a range of rearing survival estimates into their final model to provide greater confidence in model output. The agencies also could conduct a more thorough sensitivity analysis of the effects of the rearing survival estimates and rearing rules on all alternatives, instead of only the alternative with the largest estimates of benefits to fish (Alternative 6). Without this additional work, the analysis is deficient because it likely overstates the project's fish benefits.

Response

The SBM output is intended to be used for comparative purposes between alternatives and existing conditions, and all alternatives are evaluated using the same parameters. The EIS/EIR used the best available data, and no available data indicates that a survival rate of .97 or .95 is more appropriate. In addition, changing the rearing survival rate would not change the comparative conclusion described for the alternatives and existing conditions.

Comment LA03-16

Comment

Comment 8-3: Did not include an analysis demonstrating that the ELAM model predicts lower entrainment estimates in the EIS/EIR. On p. 26 of the draft Yolo Bypass Salmon Benefits: Modeling the Benefits of Yolo Bypass Restoration Actions on Chinook Salmon (Hinkelman et al. May 2017) (see Attachment 8), a graph and discussion of the entrainment estimates from the ELAM are provided demonstrating the entrainment estimates are lower with the ELAM than the Juvenile Entrainment Evaluation Tool. This graph and discussion is not present in the same document included in the EIS/EIR, also called Yolo Bypass Salmon Benefits Model: Modeling the Benefits of Yolo Bypass Restoration Actions on Chinook Salmon (Hinkelman et al. August 2017, Appendix G4). The County was not able to identify any discussion in the Chapter 8 demonstrating why DWR and the Bureau removed this analysis. The County recommends including this sensitivity analysis and using this information to evaluate the alternatives.

Response

The figures and discussion of ELAM in the May 2017 version of Hinkelman et al. 2017 were based on draft and outdated ELAM model output. The ELAM output described in the May 2017 version also was not directly applicable to the EIS/EIR alternatives. Subsequent ELAM modeling was conducted for each of the EIR/EIS alternatives. The updated ELAM output is described in Chapter 8 of the EIS/EIR. In addition, see Response to Comment LA03-15.

Comment LA03-17

Comment

Comment 8-4: Additional discussion needed on limitations of the Juvenile Entrainment Evaluation Tool. On Page 65, paragraph 4, please discuss the additional limitations of the Juvenile Entrainment Evaluation Tool with respect to the other entrainment tools. As discussed previously, both the ELAM and Critical Streakline Analysis consider fish movement (behavior

and tracks, respectively) and hydraulics associated with the different alternatives, but the Juvenile Entrainment Evaluation Tool does not. The Juvenile Entrainment Evaluation Tool assumes simplistically that entrainment is directly proportional to flow diverted onto the Bypass, in spite of scientific data to the contrary. In looking at acoustic movement data near Fremont Weir, Steel et al. 2016 found that different runs (winter and late fall) displayed non-uniform distributions across the channel. Finally, Smith et al. (2017) found that while larger notches generally increased entrainment, entrainment was not proportional to flow. Blake et al. (2017) found that the location of each modification scenario significantly impacted entrainment with entrainment varying as much as 400% based on where the scenario was located. The analysis should cite these studies in its description of the limitations of the Juvenile Entrainment Evaluation Tool.

Response

Entrainment models and a summary of their limitations are described in Section 8.3.1.2.1, Analytical Tools, of the EIS/EIR. The EIS/EIR references the model-specific technical memoranda for additional detail.

Comment LA03-18

Comment

Chapter Nine: Vegetation, Wetlands, and Wildlife Resources

The Yolo Habitat Conservancy (YHC) has commented extensively on consistency of the Yolo Bypass Salmonid Project with the Yolo HCP/NCCP. Similarly, the Yolo Basin Foundation has commented extensively on deficiencies in the analysis related to impacts on vegetation, wetlands, and wildlife resources. The County highlights some of these comments below:

Comment 9-1: Standard for Adequacy. The basic CEQA standard for adequacy is an evaluation of the environmental effects of a proposed project in light of what is reasonably foreseeable (CEQA Guidelines Section 15151). Implementation of the Yolo HCP/NCCP is reasonably foreseeable. The final HCP/NCCP and related EIS/EIR were delivered to the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife on January 23, 2018 and are awaiting the authorization of those agencies for formal release and final action. Both the federal and state governments have extensive investments in this plan and common interests in ensuring its success. In light of this please revise the second to last threshold of significance in Chapter 9 (Vegetation, Wetlands, and Wildlife Resources) related to HCP consistency to include “impending” as well as adopted HCPs, such as the Yolo HCP/NCCP. Also, please revise this chapter generally (and Impact TERR-11 in particular) to include a complete analysis of the potential for conflict with the Yolo HCP/NCCP, such as the overlap of the project with areas the Yolo Habitat Conservancy has identified as important giant garter snake habitat, and recirculate the document to allow stakeholders such as the YHC to properly consider the analysis and results.

Response

"Impending" was added to the HCP/NCCP threshold. The Final Yolo HCP/NCCP was reviewed and the Project is consistent with the provisions of that document. Therefore, there are no conflicts with the Final Yolo HCP/NCCP and the conclusion of no impact still stands.

Appendix B to comment letter NG04 from the Yolo Habitat Conservancy identified six species that it is working to protect within the HCP/NCCP that have habitat within the Yolo Bypass and that may be affected by the proposed project. These species are giant garter snake, western pond turtle, Swainson's hawk, yellow-billed cuckoo, least Bell's vireo, and white tailed kite. The comment letter also identified priority lands for the HCP/NCCP that are located within the Yolo Bypass.

The EIS/EIR did not identify any significant impacts to the four bird species identified within the HCP/NCCP. It did identify potentially significant impacts resulting from construction and maintenance activities for giant garter snake and western pond turtle. With implementation of avoidance and minimization measures and compensatory mitigation, these impacts will be less than significant. The EIS/EIR did not identify any significant impacts to giant garter snake or western pond turtle resulting from operations of the proposed project. See discussion below for the effect of the project on each species in the habitat areas identified in Appendix B to NG04. The range of impact is the same or similar to that identified in the EIS/EIR for each species and does not change the conclusion of not significant for operations of the proposed project.

To the extent that the proposed project construction will affect species in HCP/NCCP priority lands (or, for that matter, any habitat identified for the listed species), mitigation measures are in place to prevent or compensate for such impacts. In addition, DWR and Reclamation are open to coordinating with the YHC regarding mitigation for the Project, although the Lead Agencies cannot commit to mitigation through the Yolo HCP/NCCP due to the timing of Project mitigation.

Therefore, the EIS/EIR has adequately disclosed the effects of the terrestrial resources. Mitigation measures are incorporated for all significant effects (as defined by CEQA). No outstanding inconsistencies have been identified and as such no recirculation is warranted.

Yolo HCP/NCCP Priority Lands. Based on the Priority Lands map provided as Attachment A to the Yolo Habitat Conservancy (Provenza) letter (also presented in Exhibit 2-5 in the Yolo HCP/NCCP EIS/EIR), construction and maintenance of Alternatives 3, 4, and 6 would impact a small area of Priority 1 (higher priority) Lands in the Fremont Weir Wildlife Area and of construction of maintenance of Alternative 4 would impact a small area of Priority 2 (lower priority) Lands along the northern water control structure. Because these areas represent such a small proportion of the total designated Priority 1 and 2 lands and the project would not prevent successful implementation of the identified Yolo HCP/NCCP conservation measures, conservation strategy, or conservation reserve system, construction and maintenance impacts would not be considered significant. In terms of potential operations impacts, when comparing the average change in wet days for the different alternatives specifically in the areas designated as Yolo HCP/NCCP Priority Lands in Attachment A to the Yolo Habitat Conservancy (Provenza) letter, many of these lands showed no change in wet days across all alternatives (including the area immediately south of I-5 as well as the western part of the bypass south of I-80), some lands showed 1 day to up to 2 weeks of increased wet days (including the area south of

the SBWA and the eastern part of the bypass south of I-80), and isolated areas for Alternatives 4 and 6 showed up to 4 weeks of increased inundation.

Giant garter snake. As noted in Section 9.3.3.2.3, effects on giant garter snake from construction and maintenance activities are considered significant. Mitigation Measures MM-TERR-12 (Implement Giant Garter Snake Avoidance and Minimization Measures) and MM-TERR-14 (Compensate for the Loss of Giant Garter Snake Aquatic and Upland Habitat) would reduce these impacts to less than significant.

When comparing the average change in wet days for the different alternatives specifically in the areas designated as modeled giant garter snake habitat in Attachment B to the Yolo Habitat Conservancy (Provenza) letter (NG04), areas designated as rice habitat varied from no change in number of wet days in some areas to up to 2 weeks in others (Alternatives 1 through 3 and 5), no change up to 3 weeks (Alternative 6), and no change up to 4 weeks (Alternative 5). Areas designated as freshwater emergent wetland varied from no change in wet days in some areas to up to 2 weeks in others (Alternatives 1 through 3 and 5), no change up to 4 weeks (Alternatives 4 and 6), and Alternative 4 also had some areas that had 1 day to up to 2 weeks fewer wet days. Areas designated as overwintering habitat varied from no change in wet days in some areas to up to 2 weeks in others for all Alternatives. These changes are within the ranges of what has been described for each alternative in Chapter 9.

Western pond turtle. As noted in Section 9.3.3.2.4, construction and maintenance effects on western pond turtle are considered significant. Mitigation Measure MM-TERR-15 (Conduct Surveys for Western Pond Turtle prior to Construction and Maintenance Activities) would reduce these impacts to less than significant. When comparing the average change in wet days for the different alternatives specifically in the areas designated as modeled western pond turtle habitat in Attachment C to the Yolo Habitat Conservancy (Provenza) letter (NG04), areas designated aquatic habitat and overwintering habitat showed no change to less than one day to up to 2 weeks (Alternatives 1-3 and 5), up to 4 weeks (Alternatives 4 and 6) increased inundation, and Alternative 4 also had some areas that had 1 day to up to 2 weeks fewer wet days. Areas designated as nesting and overwintering habitat within the FWWA also included areas that were modeled as drier by one day to more than 2 weeks. These changes are within the ranges of what has been described for each alternative in Chapter 9.

Comment LA03-19

Comment

Comment 9-2: Approach. Section 9.3.2 (Thresholds of Significance – CEQA) is missing the mandatory discussion of the following issues (CEQA Guidelines Section 15065(a)(1)): 1) whether the project has the potential to substantially degrade the quality of the environment; 2) whether the project has the potential to substantially reduce the habitat of a fish or wildlife species; 3) whether the project has the potential to cause a fish or wildlife population to drop below self-sustaining levels; and 4) whether the project threatens to eliminate a plant or animal community. Please revise Section 9.3.2 to include these mandatory thresholds, and please revise this Chapter to include an analysis of these impacts, including substantiated conclusions, and feasible mitigation.

Response

The CEQA thresholds provided in Section 9.3.2 cover the topics of CEQA Guidelines Section 15065(a)(1). The first threshold listed in Section 9.3.2 specifically discusses the quality and quantity of both suitable habitat and known occupied habitat for sensitive plants and wildlife as well as a substantial reduction in population size (not necessarily just a drop below self-sustaining numbers) as being a threshold for the determination of significance. The thresholds as currently written in Section 9.3.2 involve more precise standards for determining whether an impact would be significant (or an adverse effect would be substantial) than is provided by the more general language in CEQA Guidelines Section 15065(a)(1). The analysis of the level of effects pertaining to these thresholds was carried throughout all impact categories in this chapter and is what the determination of significance was based on. Therefore, no edits to this section were made. Please note CEQA thresholds pertaining to fish are presented in Chapter 8., *Aquatic Resources and Fisheries*.

Comment LA03-20**Comment**

Comment 9-3: Mitigation Measures. All of the missing areas of impact analysis identified above, plus the other areas of impact that are identified in this Chapter, could be feasibly lessened or avoided by including the following reasonable and feasible mitigation measures:

- Implement all aspects of the project in a manner consistent with and not in conflict with the Yolo HCP/NCCP.
- Coordinate with the YHC to provide mitigation through the Yolo HCP/NCCP.
- Ensure that no aspect of the proposed project is implemented in a manner that precludes the Yolo HCP/NCCP from successful implementation of the identified Yolo HCP/NCCP conservation measures, conservation strategy, or conservation reserve system.
- Modify the project as necessary to avoid adverse effects to properties identified as Yolo HCP/NCCP priority conservation lands.

Response

See Response to Comment LA03-18. DWR and Reclamation are willing to coordinate with the YHC regarding locating mitigation needs for the Project within YHC priority lands, but the Lead Agencies cannot commit in advance to providing mitigation needs through the Yolo HCP/NCCP in a way that might adversely affect the timing and cost of Project mitigation.

Comment LA03-21**Comment**

Comment 9-4: Inadequate analysis of impact on wetlands and nesting and foraging habitat. No analysis is presented to support the conclusion that there is no impact from operations of the Yolo Bypass Salmonid Project on wetlands and nesting and foraging habitat. The Yolo Basin

Foundation has pointed out that nesting can start as early as February and additional inundation in the Bypass could affect food supply. [Petrik, K. et al. 2012. Waterfowl Impacts of the Proposed Conservation Measure 2 for the Yolo Bypass: An Effects Analysis Tool. Bay Delta Conservation Plan - Yolo Bypass Fisheries Enhancement Planning Team.] The County also could not find any analysis in the EIS/EIR to support the conclusion that the Yolo Salmonid Project will not affect wetlands. The analysis is deficient and should include additional analysis of these potential impacts.

Response

The threshold associated with Impact TERR-9 on jurisdictional wetlands, waters, and riparian areas states that the project would "have a substantial adverse effect on Federally or State-protected wetlands as regulated under Section 404 of the CWA or the Porter-Cologne Act, including, but not limited to, marshes, vernal pools, and coastal wetlands through their direct removal, filling, hydrological interruption, or other means. An effect would be substantial if it would result in the permanent reduction in acreage or function of the wetland." Operations would not include the removal, filling, hydrological interruption, or other effects that would result a permanent reduction in acreage or function of wetlands.

Details regarding the anticipated changes in average number of wet days are provided in Section 9.3.3.1 of the EIS/EIR, which states that during operations, "Alternative 1 would generally result in an overall increased number of wet days within the Yolo Bypass of one week (with localized areas in the east experiencing an increased average number of wet days of up to three weeks and some areas in the west experiencing no change). Inundation data were obtained from Appendix H5 and Figures 13-4 through 13-6 in Chapter 13, *Recreation*, and Figure 11-5 in Chapter 11, *Land Use and Agriculture Resources*). Areas in the western and northwestern portions of the FWWA would experience a reduction in the number of wet days. In general, areas in the eastern part of the Yolo Bypass would experience a greater increase in the number of wet days than the western part of the Yolo Bypass, where some areas would see no effect."

Inundation or saturation within the upper 12 inches of the soil would have to occur for 18 or more consecutive days on a 'normal' basis (average of every other year), cause a shift to at least a seasonal vegetation community dominated by hydrophytes and cause anaerobic conditions in the soil to qualify as wetland. Existing wetland and open water habitat in the Yolo Bypass, such as Tule Pond, are supplemented with groundwater as noted in Section 2.3.1 and not dependent of winter and spring surface flows alone. As visible in modeling results over a 16-year period (Figures 26-41 Appendix H5 of the EIS/EIR), increases of more than two weeks in the duration of inundation (as indicated by last wet day) vary from year to year as well as in spatial distribution. As a result, few locations within the Yolo Bypass, if any, exhibit repeated increases in duration of inundation. Those locations that do exhibit multiple increases in inundation duration of greater than two weeks, exhibit that condition in only one out of five years. This is not a sufficient frequency to result in a shift of non-wetland to wetland or, conversely, wetland to non-wetland.

As described in Section 9.3.2, an alternative would result in a significant impact under CEQA on terrestrial biological resources if it would have a substantial adverse effect, either through direct mortality or through habitat modifications, including designated critical habitat, on any terrestrial plant or wildlife species identified as a candidate, sensitive, or special-status species in local or

regional plans, policies, or regulations, or by USFWS or CDFW, including substantially reducing the number or restricting the range of an endangered, threatened, or rare species.

As detailed in Section 9.2.1, the Migratory Bird Treaty Act prohibits take of migratory birds or their nests, although harassment and habitat modification are not included unless they result in direct loss of birds, nests, or eggs. Therefore, the scope of impact analysis is limited to direct impacts from construction or vegetation management as described in Section 9.3.3.2.5.

Per Table 9-4, the special-status avian species that nest or have potential to nest in the Yolo Bypass include tricolored blackbird, grasshopper sparrow, burrowing owl, short-eared owl, redhead, Swainson's hawk, northern harrier, yellow warbler, western yellow-billed cuckoo, white-tailed kite, yellow-breasted chat, least bittern, loggerhead shrike, California black rail, song sparrow (Modesto population), white-faced ibis, purple martin, bank swallow, least Bell's vireo and yellow-headed blackbird. Of these, grasshopper sparrow, song sparrow (Modesto population), burrowing owl, short-eared owl, Swainson's hawk, northern harrier and white-tailed kite depend upon upland habitats for nesting and/or foraging. Although the peak bird breeding season generally begins in mid-march, the White-tailed kite and loggerhead shrike begin in mid-February and Swainson's hawk begins in early March. Therefore, the breeding season for these three species overlaps the proposed project operation. As detailed below, potential loss of foraging and/or nesting habitat for these species was analyzed based on the change in average number of wet days resulting from each project alternative.

As visible in modeling results over a 16-year period (Figures 26-41 Appendix H5 of the EIS/EIR), many years (37 percent) exhibited little or no change in last wet day (as an indicator of inundation length), several years (19 percent) exhibited delays in the last wet day (suggesting increased inundation duration) but confined to areas that would have been inundated regardless of the project, and the remaining 44 percent exhibit additional inundation. The spatial distribution of the additional flooding areas is also variable. Small mammals are the main component of Swainson's hawk and northern harrier diet during the breeding season. Given that small mammal populations recover relatively quickly (approximately one year) after flooding, the anticipated variation in temporal and special inundation patterns allows for prey population recovery between inundation events. Additionally, white-tailed kite, Swainson's hawk and loggerhead shrike can take advantage of a wide variety of prey including insects, amphibians, reptile, birds and small mammals and the same spatial and temporal variation in inundation prevents a significant change in nesting habitat quality.

Comment LA03-22

Comment

Comment 9-5: Impact TERR-3 – Insufficient analysis of impact on giant garter snake. The analysis provided in Section 9.3.3.2.3 and elsewhere in this chapter related to the impact of operations on giant garter snake resulting from changes in the duration of inundation acknowledges that “inundation of occupied burrows below the elevation of floodwaters may result in the loss of giant garter snake individuals” but considers these direct or indirect adverse effects on giant garter snake less than significant. The analysis relies on an increased number of days of inundation as the metric for making this determination; however, there is no discussion of any analysis that was conducted to determine the increase in areas that will be inundated as a

result of the project that would not otherwise be inundated (such as during below-average water years). The annual inundation of areas not currently inundated every year may cause a significant impact to giant garter snakes and should be evaluated and discussed in the EIS/EIR. Analyzing only a potential increase to the number of days of inundation could artificially deflate the magnitude of the impact by failing to account for the fact that the occurrence of inundation, not just its length, will also be influenced by project implementation.

Response

See Response to Comment LA03-18.

Comment LA03-23

Comment

Comment 9-6: Impact TERR-9: Potential effects on USACE, RWQCB, and CDFW jurisdictional wetlands, waters, and riparian areas are underestimated (p. 9-76). The EIS/EIR analyzes construction impacts on wetland and riparian areas, but fails to analyze the impact of operations. The EIS/EIR states only:

“Under Alternative 1, operations would not result in adverse effects on areas subject to USACE and CDFW jurisdiction as no fill materials would be placed in waters during operations.” (p. 9-81)

The EIS/EIR fails to analyze the impact of additional flooding from the proposed project on USACE, RWQCB, and CDFW jurisdictional wetlands. DWR and the Bureau should complete this analysis and recirculate the EIS/EIR so the public can review this important analysis.

Response

See Response to Comment LA03-21.

Comment LA03-24

Comment

Comment 9-7: Impact TERR-11. The analysis provided in Section 9.3.3.2.11 and elsewhere in this chapter relating to conflicts with the Yolo HCP/NCCP is conclusory. No evidence or analysis is provided to support the discussion. Also, please correct the citation used. While ICF is a YHC consultant, they are not the lead agency or regulatory author of the plan. Please cite the YHC as the author of the Yolo HCP/NCCP and its related EIR.

Response

See Response to Comment LA03-18. The author and date of Yolo HCP/NCCP was changed to YHC 2018.

Comment LA03-25**Comment**

Comment 9-8: No analysis of potential conflicts with Yolo HCP/NCCP species habitat. The project footprint overlaps with habitat for species covered by the Yolo HCP/NCCP, such as giant garter snake impacts in Comment 9-5 and western pond turtle. The Yolo Habitat Conservancy is providing maps of this habitat as part of its comment letter on the project. The agencies did not sufficiently analyze potential conflicts as part of the EIS/EIR.

Response

See Response to Comment LA03-18.

Comment LA03-26**Comment**

Chapter Ten: Cultural and Paleontological Resources

Comment 10-1: Inadequate analysis of cultural resources. A cultural resources inventory has never been conducted in the majority of the footprint of Alternative 1 even though additional prehistoric archaeological resources are likely to be found in the portion of the footprint where surveys have not been conducted. Surveys of identified construction disturbance areas are being deferred to after completion of the environmental review process. Without providing decision makers and the public with an opportunity to understand the project's actual impacts on sensitive cultural resources and to determine whether the identified mitigation measures would actually reduce these impacts to less-than-significant levels, the Draft EIR/EIS is not meeting CEQA's fundamental disclosure purposes. Complete surveys of the sensitive cultural resources located within the area of potential effect should be conducted and a full assessment of the project's effects on these resources should be prepared and circulated for public comment prior to finalizing the environmental documents. The same comments apply with equal force to the other action alternatives analyzed in the EIS/EIR.

Response

Relevant NEPA and CEQA guidance regarding data availability and requirements for the EIS/EIR is presented below. As noted in the EIS/EIR (Section 10.3.2.2.1) "The 2014 pedestrian surface survey confirmed that large parts of the Project area experienced previous ground disturbance (i.e., sediment removal, excavation of borrow areas, and excavation for construction of Tule Canal and Fremont Weir). The study further revealed that the Alternative 1 survey area is sensitive for the presence of buried deposits of cultural resources, as confirmed by the discovery of buried deposits identified at prehistoric sites DWR-FW-1, DWR-FW-2 and DWR-FW-3. Communication with DWR archaeologists indicates these resources may be sensitive for human remains. The 2017 study further identified the Fremont Weir and the East Yolo Bypass Levee as historic-era cultural resources likely eligible for listing on the NRHP and CRHR. Impacts from the placement of the Supplemental Fish Passage structure described in Section 2.4.1.7 may cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA

Section 15064.5.” Due to the level of disturbance noted above, pedestrian surveys would not provide assurances that subsurface resources were not present. Some properties were inaccessible due to private ownership and authority to access those properties was not available. Therefore, the EIS/EIR used available data from the field reconnaissance that could reasonably be conducted and data from previous studies conducted in the vicinity to assess the potential and magnitude of adverse effects on the cultural resources. The mitigation measures identified for cultural resources are general standards accepted by cultural resources specialists and provide adequate measures to identify and protect any cultural resources that may be present. These mitigation measures include Mitigation Measure MM-CULT-1: Prepare a Treatment Plan and Perform Treatment to Address the Affected Resources Identified as Significant and Eligible for the NRHP and/or CRHR; Mitigation Measure MM-CULT-2: Conduct Inventory, Evaluation, and Treatment of Archaeological and Historic Built Environment Resources; Mitigation Measure MM-CULT-3: Implement an Archaeological Resources Discovery Plan, Conduct Evaluation, and Treatment of Archaeological Discoveries; Mitigation Measure MM-CULT-4: Conduct Preconstruction Training for Construction Crews; and Mitigation Measure MM-CULT-5: Follow State and Federal Law Governing Human Remains if Such Resources Are Discovered during Construction. The decision makers have sufficient information to make an informed decision.

NEPA §1502.22 Incomplete or unavailable information.

“When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.”

If the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, the agency shall include within the environmental impact statement: (1) A statement that such information is incomplete or unavailable; (2) a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment; (3) a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment; and (4) the agency’s evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community.

CEQA 15151. STANDARDS FOR ADEQUACY OF AN EIR

An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.

CEQA 15204(a). FOCUS OF REVIEW

In reviewing draft EIRs, persons and public agencies should focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated. Comments are most helpful when they suggest additional specific alternatives or mitigation measures that would

provide better ways to avoid or mitigate the significant environmental effects. At the same time, reviewers should be aware that the adequacy of an EIR is determined in terms of what is reasonably feasible, in light of factors such as the magnitude of the project at issue, the severity of its likely environmental impacts, and the geographic scope of the project. CEQA does not require a lead agency to conduct every test or perform all research, study, and experimentation recommended or demanded by commenters.

Comment LA03-27

Comment

Comment 10-2. Inadequate mitigation measure. It is difficult to understand why the impact conclusion following implementation of feasible mitigation is reduced from “significant” to “less than significant” for Impacts CULT-1, CULT-2, and CULT-4. While the County understands that mitigation proposed to reduce Impacts CULT-1, CULT-2, and CULT-4 may be somewhat effective, the discussion in Chapter 10 makes clear it is unlikely to be entirely effective and that some damage or destruction of cultural resources may result. On this basis, it seems each impact should be “significant and unavoidable” for the same reason that the impact analyzed in Impact CULT-3 is deemed “significant and unavoidable”—i.e., there is insufficient information about the potential magnitude of each impact, even with implementation of feasible mitigation, to determine whether the permanent destruction of affected resources will be “less than significant.” These impact conclusions are thus unsubstantiated and legally improper.

Response

It is recognized and disclosed that some cultural resources may be damaged or destroyed during the implementation of the projects. For those resources identified in the inventory process, appropriate mitigation is included that will reduce the effects below a level of significance. Mitigation Measure MM-CULT-2 states:

- “...For all identified resources, DWR and/or the appropriate Federal agencies will evaluate the resources to determine whether they are any of the following:
 - Historical resources [State CEQA Guidelines Section 15064.5(a)]
 - Unique archaeological resources under CEQA [California PRC Section 21083.2(g)]
 - Historic properties (36 CFR 60.4)
 - Resources eligible for other local registers as may be appropriate
- The results of the evaluations will be documented in an evaluation report that provides an assessment of CRHR and/or NRHP-eligible resources requiring treatment to mitigate adverse effects and significant impacts. The Lead Agencies will make such a determination if project construction would involve any of the following consequences:
 - Demolish or materially alter the qualities that make the resource eligible for listing in the CRHR [State CEQA Guidelines Section 15064.5(b)(2)(A)(C)]
 - Demolish or materially alter the qualities that justify the inclusion of the resource on a local register or its identification in a historical resources survey meeting the

requirements of California PRC Section 5024.1(g) unless the Lead Agencies establish by a preponderance of evidence that the resource is not historically or culturally significant [State CEQA Guidelines Section 15064.5(b)(2)(B)]

- Alter, directly or indirectly, the qualities that make a resource eligible for listing in the NRHP [36 CFR 800.5(a)(1)]
- Demolish or materially impair the qualities that allow a resource to qualify as a unique archaeological site (California PRC Section 21083.2)
- For all resources qualifying as unique archaeological resources, historical resources, or historic properties that would be subject to significant impacts, the Lead Agencies would develop and implement a treatment plan, as described above in Mitigation Measure MM-CULT-1.”

Impact CULT-3 addresses effects that may be affected by project implementation that are not identified during the inventory process. Those unidentified resources could be significantly affected; therefore, the conclusion was that even with the construction monitoring, there was an unavoidable potential for significant effects to remain.

Comment LA03-28

Comment

Chapter Eleven: Land Use and Agricultural Resources

Comment 11-1: Assumes project will not convert cropland because USDA will continue to offer preventative planting insurance. Chapter 11 assumes the project will not convert farmland, despite a discussion in Chapter 16: Socioeconomics that whether the USDA will continue to support preventative planting insurance remains unknown. (Prominent Yolo Bypass farmers have asserted they will not continue to farm if preventative planting insurance is not offered. See Attachments 10 and 11; see also comments on Chapter 16: Socioeconomics on this issue.) According to James Otto with the USDA, the USDA Risk Management Agency will need to evaluate whether the flooding is “man-made” and if so, whether to continue to offer preventative planting insurance.

Further analysis of the potential for this change should appear in the EIS/EIR because, if preventative planting insurance is eliminated and farmland is effectively converted as a result, it could lead to numerous other indirect impacts on habitat values, flood conveyance, and other aspects of the current environment setting evaluated in the EIS/EIR. It’s critical to have this information now in assessing the potential impacts of the project under both CEQA and NEPA. Presumably, if requested by DWR and the Bureau, the USDA can complete its evaluation of this issue in a timely manner and provide the information necessary to enable a much more informed assessment of whether the project will result in a conversion of substantial farmland acreage in the Yolo Bypass. Absent such information, the analysis of this potential effect is speculative and legally inadequate.

Response

Current information does not indicate that there will be a significant conversion of cropland. Sections 11.3.3.2.2, 11.3.3.3.2, 11.3.3.4.2, 11.3.3.6.2, and 11.3.3.7.2, describe the lands that would be permanently and temporarily affected due to Project actions. It was concluded that these effects would be less than significant. In addition, March 15 was identified as the last day to allow inundating flows through the bypass to limit the impacts to agriculture. Alternative 4b also considers March 7 as a last day of operation.

Chapter 16, *Socioeconomics*, states that a final resolution regarding how insurers would address the Project with respect to preventative crop insurance in the Yolo Bypass would likely not be reached until the USDA RMA, insurers, and the growers who are actually facing this situation have to grapple with the various implications and incentives. Although the EIS/EIR disclosed that there is uncertainty regarding future preventative crop insurance in the Yolo Bypass, it would be speculative to presume that this uncertainty would result in cropland conversion resulting in significant environmental impacts. Preventative crop insurance is currently only available to conventional rice growers even though there are multiple other types of crops grown in the Yolo Bypass. Figure 11-2 in the EIS/EIR shows the crop types grown within the Yolo Bypass. Thus, some growers already farm in the Bypass without preventative crop insurance.

Furthermore, there are other factually similar situations where changing conditions and operations in an agricultural landscape have not resulted in a loss of preventative crop insurance coverage. For example, operations of the CVP and SWP have evolved over time and, even when operational changes have resulted in reduced water supply availability to CV and SWP contractors, rice growers in these regions have continued to have access to preventative crop insurance. Therefore, based on the information available at the time of the EIS/EIR, it is not reasonably foreseeable that the Project would result in growers ceasing farming activities in the Yolo Bypass.

CEQA and NEPA do not require analysis of every possible future condition, but rather what is reasonably foreseeable. Therefore, the EIS/EIR does not analyze the potential for conversion of farmed land to non-agricultural use because the analysis does not indicate that this is reasonably foreseeable. See Master Response 4: Impacts to Landowners and Other Users of Land. To the extent appropriate, discussions related to socio-economic impacts and compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment LA03-29

Comment

Comment 11-2: The analysis of the impacts on agricultural land is inadequate because of the lack of sensitivity analysis. Given the large number of variables that affect farmers' planting decisions in the Yolo Bypass, and the potential impact of changes in assumptions (e.g. availability of preventative planting insurance), the lack of sensitivity analysis is remarkable. The existing analysis provides results of average impacts from project alternatives. Environmental conditions may include consecutive years in which additional inundation from the proposed project delays planting every year over a three- to five-year period – or even longer. But results are presented over time and do not consider cumulative effects through time. Although figures show the effects

each year, there is no evaluation of the implications from frequency of repeated annual flooding. This analysis deficiency and other long-term hydrologic conditions are important to test, especially in light of recent climate extreme events in California.

Response

The discussion in Section 11.3.1 has been revised to provide more background on how the analysis was done and the basis for the analysis [Draft Yolo Bypass Flood Date and Flow Volume Agricultural Impact Analysis], including documentation of the methodology. The analysis took into account the most likely scenarios based on the available data. Results are presented over time but are driven by annual hydrologic conditions that are random weather events, and the underlying hydrodynamic analysis, so there are no cumulative effects. Sensitivity analysis is measured with respect to hydrodynamic conditions--which are the primary driver of the resulting economic impacts--and those are reflected in the various Project Alternatives.

See also Master Response 4: Impacts to Landowners and other users of land. To the extent appropriate, discussions related to socio-economic impacts and compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment LA03-30

Comment

Comment 11-3: The cumulative impact analysis is deficient. The analysis does not even attempt to quantify or even qualitatively describe potential farmland conversions with the Lower Elkhorn Basin Levee Setback Project (e.g. hundreds of acres) and other projects, such as Lower Yolo Ranch (over 1,000 acres). This analysis should be updated to reflect the potential farmland conversions that will result from these and other reasonably foreseeable projects.

Response

The cumulative discussion in Section 11.4.2 has been extended to include more information on the potential impacts from the Lower Elkhorn Basin Levee Setback Project and the Lower Yolo Ranch Restoration Project. However, full impact analysis would be provided by the environmental documentation associated with each project.

Comment LA03-31

Comment

Comment 11-4: Analysis of field preparation time needs to include evaluation of additional Toe Drain/Tule Canal flows. Similar to the RD 1600 issue mentioned in the County's comments on Chapter 4, the County is concerned that the estimate of 34 days for drying, preparation, and planting does not include additional drainage time that will result because the Toe Drain/Tule Canal contains additional water from the operable gate in the Fremont Weir. The estimate of 34 days should be updated after this analysis is completed.

Response

Field preparation time is an independent variable and the 34-day drying time does not take place until water has drained from the fields. The time it takes for water to drain off of the fields is simulated by the hydraulic model and does not account for the volume of water in the Tule Canal/Toe Drain.

Chapter 2 includes a description of maintenance activities, and the action alternatives include removal of vegetation and debris from project channels, including the Tule Canal. As indicated in Section 2.4.4.3, "Maintenance activities would include removing vegetation and debris from the project channels annually. Grasses and woody vegetation would be allowed to remain in the channels unless it becomes an obstruction to flow within the passage channel." The text has been revised to state, "Grasses and woody vegetation would be allowed to grow within the proposed transport channel. The grasses and woody vegetation would not be allowed to be higher than the elevation of the adjacent ground outside of the proposed transport channel or the Tule Pond/Tule Canal within the Fremont Weir Wildlife Area. Therefore, the channel would avoid reducing the flood capacity of the Yolo Bypass."

Comment LA03-32

Comment

Chapter Twelve: Geology and Soils

Comment 12-1: Impact GEO-1. The analysis identifies a 13 percent increase in annual sedimentation rates and states that while sediment removal will need to occur more frequently, it is a less than significant impact. It has become increasingly difficult to secure permits for sediment removal in the floodway, as well as more costly due to mitigation requirements. As a result, any change in sedimentation rates should be considered significant. As a mitigation measure, the project should include CESA and ESA coverage for all O&M activities, including sediment removal. Without such coverage, the likelihood that sediment removal will occur at frequent intervals (as assumed in the analysis in this Chapter) is substantially diminished. The assumed frequency of sediment removal is already highly questionable—and thus, the impact conclusion is flawed—because removal activities currently occur on a highly irregular basis and there is no objective reason to believe this will change in the future.

Response

As indicated in Section 2.4.4.1, "Most of the sediment that settles out would be removed through flood maintenance in the Fremont Weir Wildlife Area, as under existing conditions." The additional deposition would be in areas inundated regularly under each alternative and associated sediment removal efforts would focus on the channel system. Each alternative would accumulate additional sediment annually that would be removed from the Fremont Weir Wildlife Area every five years.

Sedimentation within the bypass and Tule Canal would still occur as it does currently during overtopping events, primarily during the receding flows, but the implementation of this project would result in more frequent channelized flows through the Tule Canal System that would have

a flushing effect on sedimentation. The area of expected primary sedimentation deposition would occur in the Fremont Weir Wildlife Area where maintenance activities for sediment removal within the channels are included as part of the action alternatives. It is not expected that sedimentation removal would be needed for the entire Tule Canal, but areas may develop in the future that may require this to be revisited in order to address sedimentation for specific areas beyond the wildlife area.

As noted in Sections 9.3.3.2.2, 9.3.3.2.3, and 9.3.3.2.5, maintenance effects (including removal of sediment) on valley elderberry longhorn beetle, giant garter snake, and nesting bird species would be significant. Mitigation Measures MM-TERR-7 (Conduct Valley Elderberry Longhorn Beetle Habitat Surveys Prior to Construction and Maintenance), MM-TERR-12 (Implement Giant Garter Snake Avoidance and Minimization Measures), MM-TERR-14 (Compensate for the Loss of Giant Garter Snake Aquatic and Upland Habitat), and MM-TERR-16 (Conduct Surveys Prior to Construction and Maintenance Activities for Nesting Birds, Establish Nest Buffers, and Monitor Active Nests) would reduce these impacts to less than significant.

As described above, the action alternatives include sediment removal; therefore, it does not need to be included as a mitigation measure. Sediment removal for O&M activities will be permitted through DWR's Environmental Permitting for Operation and Maintenance effort.

Comment LA03-33

Comment

Chapter Thirteen: Recreation

Comment 13-1: Inadequate analysis of recreation impacts. As discussed in the Yolo Basin Foundation letter (Attachment 2), the calculation of a 2% reduction in days available for educational programs and activities is not properly supported because the analysis does not include the days the Wildlife Area will remain closed to drain and dry out. The calculation of a 4.1% reduction in hunting days also is not properly supported for the same reason. The Yolo Basin Foundation estimates the lost education and hunting days are 2-3 times the estimates in the EIS/EIR because of the additional time needed to drain the Wildlife Area that is not included in the analysis. Yolo County supports the Yolo Basin Foundation's suggestion that this analysis should be updated.

Response

See Response to Comment SA01-4.

Comment LA03-34

Comment

Chapter Sixteen: Socioeconomics

Comment 16-1: Omits analysis of potential for USDA to discontinue support for preventative planting insurance. As discussed in the EIS/EIR, the USDA Risk Management Agency will need to evaluate whether the flooding is "man-made" and if so, whether the federal government will

continue to provide financial support for preventative planting insurance offered by private insurance companies. The analysis of the potential for this change should occur in the EIS/EIR because, if it occurs, it could lead to a reduction in farmed acreage with numerous other indirect impacts on habitat values, flood conveyance, etc. As discussed in Yolo County's comments on Chapter 11, further analysis of this issue should appear in the EIS/EIR because of the potential for farmland conversion and additional regional economic effects not currently captured by the EIS/EIR analysis. Presumably, if requested by DWR and the Bureau, the USDA can complete its evaluation of this issue in a timely manner and provide the information necessary to enable a much more informed assessment of potential impacts. Absent such information, the analysis of the regional economic effects summarized in Table 16-15 for Alternative 1 and similar tables for Alternatives 2 and 6 is speculative and legally inadequate.

Response

Reclamation and DWR have included the information received on crop insurance in Appendix K2 (formerly Appendix J2), with summary information in Chapter 16. Based on the feedback received, Reclamation and DWR do not think that farming in the Yolo Bypass would end, but that changes to crop insurance availability would need to be considered during the easement negotiation process (see Master Response 4: Impacts to Landowners and Other Users of Land). CEQA and NEPA do not require analysis of every possible future condition, but rather what is reasonably foreseeable. Therefore, the EIS/EIR does not analyze the potential for conversion of farmed land to non-agricultural use because the analysis does not indicate that this is likely. See Response to Comment LA03-28.

Comment LA03-35

Comment

Comment 16-2: Inadequate analysis of Impacts on RD 1600 gravity drain. The project as proposed will have an adverse impact on RD 1600 drainage, but no hydraulic analysis was completed to analyze these impacts. When the notch has water flowing through it, the backwater in the Tule canal will prevent the gravity drain from draining the district. This will require the pump station to be used more often resulting in increased electrical costs and wear and tear on the pump station requiring more frequent maintenance, repair and rehabilitation. The increase in sedimentation that is associated with the project will also reduce the effectiveness of the gravity drain. The EIS/EIR should further analyze this impact and include as a mitigation measure the periodic removal of sediment in the Tule Canal to avoid impacting the gravity drain, as well as CESA and ESA coverage for this O&M activity.

Response

DWR and Reclamation requested additional information from RD 1600's District Engineer that would be needed to complete a quantitative analysis, but the information was not provided. Without additional information, the qualitative analysis in Chapter 16 has not been changed. See Response to LA03-59 on maintenance issues.

Comment LA03-36

Comment

Comment 16-3: Inadequate analysis of ability of crops to survive in saturated soil conditions. The discussion in the second paragraph on page 16-17 states that an increase in shallow groundwater levels could increase saturation near the crop root zone, thereby reducing crop yields. The discussion then states that this reduction in yields would not result in permanent cropland conversions due to crop shifting. However, no evidence is provided to justify the conclusion that other crops could survive in saturated soil conditions. The discussion then states that the Elkhorn area and the west side of the Bypass only account for 1.5 to 3 percent of the total agriculture of Yolo County, presumably indicating that the loss of agricultural production in this area would be insignificant. As summarized in Table 11-3 in the Land Use Chapter, Yolo County lost nearly 3,000 acres of important farmland between 2012 and 2014; therefore, any additional losses would be considered by the County to be significant.

Response

Additional information on root zones of other crops has been added to Chapter 16. This does not change any conclusions or effect. See Master Response 4: Impacts to Landowners and Other Users of Land. To the extent appropriate, discussions related to socio-economic impacts and compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment LA03-37

Comment

Comment 16-4. Inadequate analysis of regional economic effects. Table 16-15 identifies the direct, indirect, induced, and total regional economic effects associated with implementation of Alternative 1 and similar tables are provided for Alternatives 2 through 6. The discussion on subsequent pages, however, identifies a number of additional potential impacts on the regional economy that were not analyzed, including increased inundation of pasture areas resulting in decreased productivity, the Elkhorn Area issues described in previous comments related to increases in shallow groundwater levels, the increase in loan rates, and the increase in crop insurance premiums. (Per Comment 16-1, the County believes the impacts may be greater than just an increase in crop insurance premiums and an analysis of the potential loss of preventative planting insurance is warranted.) These economic losses were not accounted for in the estimation of total regional economic effects identified in Table 16-15. Due to the uncertainty regarding all of these additional costs, the analysis in the Socioeconomic section may have substantially underestimated the adverse economic effects associated with implementation of the project alternatives.

Response

The economics analysis considers a combination of quantitative analysis (where information was available to support that analysis) and qualitative analysis (where less information was available). Sufficient information was not available on the topics in the comment to develop

aquantitative analysis, so Reclamation included these topics at a qualitative level to make sure that they were considered (as allowable under NEPA). See Responses to Comments LA03-28 and LA03-34 for more information on crop insurance.

Comment LA03-38

Comment

Comment 16-5: Inadequate sensitivity analysis. This chapter reports the results from an assessment of direct, indirect and induced effects of implementing the six project alternatives across the affected regions using IMPLAN. Results from the Bypass Production Model under each alternative are used in the IMPLAN analysis. As such, concerns raised regarding Bypass Production Model also affect the IMPLAN analysis. Primarily, the dependence on annual average outcomes ignores other potentially feasible climatic scenarios. Scenarios that depict the worst annual cases over multiple years, as we might expect more so than average events, may affect the conclusions of the analysis, potentially bring into question inferences drawn from them. As with the Bypass Production Model discussed in Chapter 11 and in Appendix K1, a lack of sensitivity analysis limits reliability on conclusions.

Response

See Response to Comment LA03-29.

Comment LA03-39

Comment

Chapter Seventeen: Transportation

Comment 17-1: No analysis of County Road 22 closure. The EIS/EIR does not analyze the impacts of increases in the closure of County Road 22 from operation of the notch in dry years when no overtopping of the Fremont Weir occurs and could extend closure of this roadway following overtopping events. Closure will affect area farming operations, general movement of vehicles that use the road between Woodland and the West Sacramento area, and oversize truck hauling (CR22 is a route used by trucks that are too high to go under the private I-5 overpass that is about 1 mile east of CR102). The County will likely receive complaints when the road is closed and the weir has not crested, especially from people that live along CR117 and the Old River Road/CR124 area. Oversize trucking routes may have to be greater distances to reach destinations. The Public Works Division would have to mobilize to close the road more frequently, incurring additional costs. The analysis of transportation impacts is therefore deficient and the EIS/EIR should include a mitigation measure to address these impacts.

Response

The majority of the trucks accessing the project site will be used to haul materials. These trucks are not expected to be oversize and would use I-5, but not use County Road (CR) 22 to access the project site. A few trucks that would be used to haul equipment could be oversize and use either CR 22 whenever it is open or an alternate longer route when SR 22 is closed. However,

these oversize trucks would be minimal in number and are not expected to result in significant impacts to alternate longer routes. The regular and alternate truck hauling routes will be identified by the construction contractor, in coordination with DWR and Reclamation, as part of Mitigation Measure MM-TRAN-3.

Comment LA03-40

Comment

Comment 17-2: Insufficient analysis of impact of truck trips from sediment removal. The EIS/EIR does not adequately analyze the number of truck trips related to removal of sediment to disposal sites within 2 miles of the project site. As identified in the Public Services, Utilities, and Power Chapter, the amount of sediment removal required for the alternatives would vary from 265,820 cubic yards for Alternative 1 to 3,149,312 cubic yards for Alternative 5. To give some perspective, the volume of sediment to be removed with Alternative 5 is nearly equivalent to the annual amount of gravel mined in the County by several major firms operating along Cache Creek. The estimated additional truck trips generated during the 28-week construction period for the six alternatives would range from 33,227 to 393,664 trips. In addition, the site's longterm sediment removal requirements would extend the project's localized traffic impacts indefinitely into the future. This level of heavy truck traffic on rural county roads that are clearly not designed to accommodate such use could be so destructive as to make them unusable by local residents and by emergency vehicles. As defined in the thresholds of significance on page 17-8, this would represent a significant impact. The Final EIR/EIS should fully describe this significant traffic and roadway impacts and identify appropriate mitigation measures to minimize the adverse effects on local residences.

Response

The discussion about sediment removal trips associated with each alternative has been updated in the Chapter 17, *Transportation*, in Sections 17.3.3.2.4, 17.3.3.3.4, 17.3.3.4.4, 17.3.3.5.4, 17.3.3.6.4, and 17.3.3.7.4. All of the sediment removal truck trips would be on neighboring local roads. Traffic volume data were not available for local roads; however, the number of truck trips associated with sediment removal in the O&M phase is less than those during construction. As such, similar or lower impacts to those during the construction phase are expected. This does not change any conclusions about effects.

Comment LA03-41

Comment

Also, the County is skeptical of the feasibility of MM-TRAN-2, which proposes establishing a "road repair agreement with Yolo County and its Public Works Division prior to initiating project construction."

First, while a similar measure is included in the EIS/EIR for the California WaterFix (MM-TRANS-1c), as of the date of this letter, DWR has not even contacted the County or its Public Works Division to initiate discussions regarding a mitigation agreement despite the February 8,

2018 testimony of Director Karla Nemeth (at the State Water Resources Control Board) that it intends to commence WaterFix construction by the end of 2018.

Response

Reclamation and DWR are committed to working with Yolo County and implementing all of the mitigation measures identified as part of the EIS/EIR.

Comment LA03-42**Comment**

Second, the measure should be revised to recognize that affected road segments will need to be entirely reconstructed following project construction (as well as possibly during project construction, and potentially following sediment removal activities during project operations). The measure refers only to potential reconstruction of road shoulders and suggests “chip sealing”—a technique that involves applying a very thin layer of asphalt to an existing roadway surface—will be employed for road repairs. But heavy trucks will effectively destroy the affected road segments and only full reconstruction will restore them to their prior level of functionality. Put simply, there is no such thing as restoring destroyed roads to “pre-project conditions.”

Response

Reclamation and DWR will be responsible for damage or deterioration of roads during construction, but not for that done to roadways prior to construction. Therefore, as mentioned in Mitigation Measure MM-TRAN-2, the affected roadway segments will be restored to pre-construction conditions, but the entire reconstruction of roadways is not part of the mitigation measure.

Comment LA03-43**Comment**

Third and finally, the EIS/EIR does not appear to include any analysis (and hence, it provides no environmental clearance) of the environmental impacts of road repair projects. This analysis is legally required and should be included in the document.

Response

The extent, locations, and level of effort involved with roadway repairs to mitigate impacts from construction is as yet unknown. All of the roadway repairs will be conducted consistent with the BMPs and appropriate environmental compliance. Mitigation Measure MM-TRAN-2 has been revised to include text that all roadway restoration will be performed in compliance with applicable environmental standards of affected agencies, as stipulated in the mitigation agreements or encroachment permits.

Comment LA03-44**Comment**

Chapter 18: Air Quality and Greenhouse Gases

Comment 18-1: Inadequate analysis of exposure of residents to toxic diesel emissions. The EIS/EIR does not include a health risk assessment, even though Impact AQ-3 states that to determine if sensitive receptors are exposed to substantial pollutant concentrations, potential health risks must be assessed. It further states that diesel particulate matter is listed as a Toxic Air Contaminant in California and would be subject to a human health risk assessment under CEQA. However, without actually conducting a health risk assessment, the impact discussion concludes that the exposure of residents to toxic diesel emissions would be less than significant due to their distance from the construction activities. This conclusion ignores the significant number of heavy trucks that will pass directly in front of multiple rural residences when accessing the site. If the residences are located along the sediment disposal route, they will further be exposed to toxic diesel emissions throughout the project's life. The preparation of a health risk assessment is necessary to appropriately quantify the potentially significant health risks for residents located along the project's proposed haul routes, consistent with CEQA. The results of such an assessment should be circulated for public review and comment prior to finalizing the environmental document.

Response

The Yolo-Solano AQMD's Handbook for Assessing and Mitigating Air Quality Impacts (2007) does not specify that a health risk assessment needs to be completed as part of the CEQA process. Rather, it relies on the California Air Resources Board's (CARB's) "Air Quality and Land Use Handbook: A Community Health Perspective" (2005) to address land use compatibility issues. CARB's Handbook states that exposure and health risk from freeways and other high traffic roads drop substantially after 300 feet and further shows that 70 percent of particulate matter drops off at 500 feet. The Handbook continues to state that sensitive land uses should not be located within 500 feet of a freeway, urban roads within 100,000 vehicles per day, or rural roads with 50,000 vehicles per day. As shown in Chapter 20, *Noise*, the closest sensitive receptors to the main construction activities are located more than 500 feet from construction activities, which would be dispersed over a large geographic area for a temporary period. Therefore, a health risk assessment is not warranted because the construction activities are consistent with guidelines in CARB's Handbook.

The impact analysis has been updated to clarify and refine the peak number of truck trips that could occur on individual road segments, which are substantially less than the total peak number of trips disclosed in the Draft EIS/EIR, which occur over a large geographic area. While some residential receptors may be located within 500 feet of a rural roadway, the annual trips associated with maintenance and other activities is relatively low and would be substantially less than CARB's guidance of 50,000 vehicles per day.

Comment LA03-45**Comment**

Chapter 20: Noise

Comment 20-1: Inadequate analysis and mitigation measures for noise increases. This chapter states that traffic levels would need to increase by at least nine times to double noise levels. The analysis on page 20-17 then states that county roads are expected to experience enough of a traffic increase to double the traffic noise levels. In effect, the analysis acknowledges that traffic levels on county roads will increase by at least nine times, without specifically stating it and without providing any information regarding existing traffic volumes on these roads. Since truck traffic associated with long-term maintenance activities are actually expected to generate more daily traffic than construction activities, this nine-time increase in traffic on local county roads would occur over the entire life of the project, which could span the lifetimes of the residents along these rural roads. More aggressive noise mitigation measures clearly need to be included in the EIS/EIR to address this significant long-term noise impact on residences located adjacent to the identified haul routes, including installation of double-paned windows, planting of trees to reduce noise, and potentially hay walls to provide a sound barrier.

Response

The analysis provided in Chapter 20 was highly conservative and assumed a worst-case day when all proposed maintenance activities would occur simultaneously. The analysis has been revised to include the predicted maintenance schedule, which reduces the peak daily number of trips. Additionally, the peak number of trips would occur over a large area. The analysis has been refined to clarify where the trips could be expected to occur, because the number of trips on individual roads would be substantially less than the peak that would occur over the entire study area.

Traffic count data on these rural roads is not available and so the significance determination was a conservative assessment. However, as described in the updated section, the maintenance activities will not happen continuously; for example, sediment removal only occurs every five years. Additional mitigation measures would not be required because the existing mitigation measures would adequately control noise impacts on the residential receptors.

Comment LA03-46**Comment**

Comment 20-2: Insufficient analysis regarding noise impacts of maintenance activities. The discussion concludes that no long-term project operations would occur under Alternative 1 that would generate excessive vibrations or groundborne noise. This statement again ignores road vibration impacts associated with long-term operations and maintenance, particularly for sediment removal. The discussion states there may be up to 112 daily worker trips and 801 haul truck trips associated with Alternative 1's long-term maintenance activities. Project construction is projected to generate only 668 daily truck trips, or 133 less than anticipated during long-term sediment removal activities. The other alternatives identify even higher levels of long-term

maintenance vehicle trips including 1,719 daily haul trips and 178 daily construction worker trips for Alternative 4. It is unclear how the noise and vibration impacts generated by the construction haul truck traffic at local residences along county roads can be identified as significant due to project construction while concluding that there would be no long-term noise or vibration impacts associated with project implementation.

Response

The noise analysis assumed a worst-case day where every maintenance activity would occur simultaneously; however, this assumption was refined with a likely maintenance schedule. The noise analysis was subsequently updated to provide a more realistic of the number of trips that would occur simultaneously.

Additionally, the analysis in the Draft EIS/EIR included all trips that would occur over the entire study area. In other words, the peak number of trips would be dispersed over a large transportation network and the number of trips on an individual county road would be substantially lower than the analysis indicated. The noise analysis was refined in this Final EIS/EIR to include updated figures that clarify the expected haul routes and the peak number of trips that would be expected to occur on each segment.

Comment LA03-47

Comment

Comment 20-3: No existing traffic volume data used to calculate noise levels along the County roads. According to the last sentence of the first paragraph on page 20-12, the analysis of noise generated from construction-related traffic was compared against the 2015 annual average daily traffic volumes published by Caltrans. However, in the traffic noise tables included in Appendix L, traffic volumes were only provided for Interstate 5. No existing traffic volume data was used to calculate the noise levels along the County roads. The noise section should clarify how noise levels associated with haul vehicle traffic were calculated when no information is provided regarding the existing traffic volumes on these roads.

Response

The traffic count data are consistent with the information provided in Chapter 20, *Transportation*. Traffic count data for the county roads is not readily available and so a quantitative assessment was not completed. As noted by the comment, noise levels on the county roads were not calculated and the significance determination was made based on the assumption that traffic levels would be relatively low due to their rural nature. The chapter was updated to clarify why a quantitative analysis was not completed.

Comment LA03-48

Comment

Chapter Twenty-two: Environmental Justice

Comment 22-1. Impacts on low-income students. The County agrees with the EIS/EIR impact statement regarding the impact on low-income students; however, the County also finds that the Yolo Basin Foundation can provide more accurate and up-to-date data on the percent of Davis Joint Unified School District and Sacramento City Unified School District Title 1 schools whom attend Yolo Bypass Wildlife Area field trips. During the 2016-17 school year, approximately 44% of the Discover the Flyway participants were from low-income Title 1 schools, or approximately 1,600 students.

Response

The analysis has been revised to include the Discover the Flyway 2016-2017 School year statistics provided by the Yolo Basin Foundation.

Comment LA03-49

Comment

APPENDIX J1: BYPASS PRODUCTION MODEL TECHNICAL APPENDIX

Comment J1-1: Substitution of inundation for irrigation requirements not addressed. Inundation can provide soil moisture and decrease the need for irrigation. The Bypass Production Model is a fixed proportions model, which might not be able to capture this condition. Whether this has an effect on the yields from the other end (deficit irrigation) or moves water needs with respect to the base amounts could alter the conclusions and should be addressed.

Response

The economic impact analysis is concerned with the effect of inundation on planting dates, corresponding crop yield changes, and farm revenues. This comment seems to conflate deficit irrigation and increased soil water level. Deficit irrigation (applying water less than crop demand for a specified period of time) is not relevant to the economic impact analysis of increased flooding (a situation where there is too much water). An increase in soil water levels (up to field capacity) could provide a small benefit to some row and field crops by reducing irrigation requirements early in the season. However, soil is typically at or near field capacity at the beginning of the season, and this effect would be negligible and would in no way alter the conclusions of the economic impact analysis of increased flooding.

Comment LA03-50

Comment

Comment J1-2: Age of data used to parameterize the Bypass Production Model needs to be rationalized. Yolo County worked with University of California, Davis economists to update the Bypass Production Model for the Yolo Bypass in 2013, hence the use of Yolo Bypass crop data from 1997 to 20124. Five years have passed since UC Davis and the County completed that work, so the use of this crop data needs to be re-evaluated to ensure it is representative of current and future cropping patterns and pricing trends (cropping decisions are influence by price).

Moreover, the appendix describing the Bypass Production Model states that the data for years 2005 - 2009 are used to calibrate the model. More recent data could provide a clearer picture of effects today and into the future and more importantly generate results and conclusions that differ from those contained in the EIS/EIR.

Response

The modeling is based on the best available data and best available science. Conditions in the Yolo Bypass have not changed sufficiently since 2012 that data used no longer represents the range of conditions that could occur.

Comment LA03-51

Comment

Comment J1-3: Lacks sensitivity analysis. As with earlier comments, there is no apparent sensitivity analysis to get a sense of range of consequences or the robustness of results for given parameter value uncertainty. For example, environmental conditions may include consecutive “bad” years when inundation could delay planting every year over a three- to five- year period or longer. Results are presented over time but do not consider cumulative effects through time. With a fuller range of values and assumptions, the results would more clearly reflect the range of possibilities rather than relying on annual average outcomes.

Response

See Response to Comment LA03-29.

Comment LA03-52

Comment

APPENDIX J2: YOLO BYPASS RICE AND TOMATO TIPPING POINTS: MILLING AND PROCESSING, CROP INSURANCE, AND

LOAN RATES

Comment J2-1: No analysis of the reduction in processed goods. For processing, an impact analysis on reduction of processed goods as a result of a reduction in available crop production from the Bypass is not conducted. Yolo County suggests providing a bracket for the potential impacts. If the impact is minor and within the range of normal year to year fluctuations, this outcome should be justified in the conclusions or the limitations of the analysis.

Response

Production of rice and tomatoes from the Bypass may vary by as much as 25 percent. However, the impact of these reductions on the processed goods markets will be minimal since the Bypass production represents 2.6 percent of California rice production and 0.9 percent of processed tomato production. As such, variations in Bypass production will not have any impact on

processed prices or availability. This is reflected in the various sensitivity analyses conducted for the Tipping Points study, Appendix K2 (formerly Appendix J2).

Comment LA03-53

Comment

Comment J2-2: Age of data used to parameterize the tipping point analyses needs to be rationalized. Similar to comment J1-2, the tipping point analyses use data from 2005 to 2009. It is likely that economic conditions over the past 5 to 10 years look differently than they did over a decade ago. Re-evaluating these analyses with current data appears warranted.

Yolo County appreciates the opportunity to comment on this document. We look forward to your response to the issues and concerns raised in this letter.

Response

See Response to Comment LA03-50.

Comment LA03-54

Comment

ATTACHMENT 1

Executive Summary, Page ES-19, Table ES-2

Impact HYD-1: In reading the no action, the text reads as if there is no change from the existing condition. If that's correct, how can it have "two additional occurrences of monthly flows greater than the maximum existing conditions monthly flow, 136,869 cfs?" Is this due to unrelated changes to reservoir operations or planned projects upstream of the Fremont Weir?

Response

The No Action Alternative includes sea level rise, implementation of the California WaterFix Project, the Grassland Bypass Project, and several other projects that would affect overall CVP and SWP operations.

Comment LA03-55

Comment

ATTACHMENT 1

Executive Summary, Page ES-19, Table ES-2

Impact HYD-2: Same comment as above (Comment LA03-54)

Response

The No Action Alternative includes sea level rise, implementation of the California WaterFix Project, the Grassland Bypass Project, and several other projects that would affect overall CVP and SWP operations.

Comment LA03-56

Comment

ATTACHMENT 1

Executive Summary, Page ES-21, Table ES-2

Impact WS-3, 4, 5: These should be reviewed by water supply interests to confirm they agree with the findings and significance.

Response

There has been substantial outreach to private land-owner, non-governmental stakeholder, government entities and others. Section 24 of the EIS/EIR provides a synopsis of the outreach. During the public review process, the public was invited to review and comment on the draft document. Subsequently, responses to comments received on the document are prepared. If any parties make a comment, either in agreement or disagreement, the EIS/EIR provided those details in the Final EIS/EIR.

Comment LA03-57

Comment

ATTACHMENT 1

Executive Summary, Page ES-17, Section ES.7

There is no mention of concerns raised by multiple stakeholders, including Yolo County and the Yolo Habitat Conservancy among others, that the project is designed and analyzed with only superficial consideration of consistency with the impending Yolo HCP/NCCP.

Refer to Letter Comment ES-1

Response

See Response to Comment LA03-18.

Comment LA03-58

Comment

ATTACHMENT 1

Chapter 2, Description of Alternatives, Page 2-26

Section 2.4.2.1: Identifies 7-8 acres of land that would be purchased for disposal. Long term sediment removal will require an additional 38-43 acres for disposal of soils from periodic maintenance removal of sediment. It's not clear that the impacts of converting Ag land for sediment disposal has been evaluated.

Response

Text has been clarified in the EIS/EIR. Reclamation and DWR would first seek to find neighboring landowners that are interested in using the sediment on their properties (in a manner that is helpful to agricultural operations and would not convert agricultural land). Several public comments indicated an interest in obtaining the sediment. If agreements cannot be made, Reclamation and DWR would obtain land for sediment disposal. At that time, the agencies would complete appropriate environmental compliance for the transaction.

Comment LA03-59

Comment

ATTACHMENT 1

Chapter 2, Description of Alternatives, Page 2-30

Section 2.4.4.3: Identifies that grasses and woody vegetation can remain in the channel unless it is an obstruction to flow. Chapter 4 does not evaluate the impacts of leaving the woody vegetation in the channel. Removal of woody vegetation in the floodway has become increasingly challenging from a regulatory perspective. The project description should be revised to remove woody vegetation annually and provide the ESA clearance for the removal. The project should also mitigate for any long term impacts that result from this O&M activity.

Response

Questions have been raised with regard to maintenance activities, especially those regarding clearing of channels and sedimentation removal. The project description includes some maintenance activities. These are described below. These maintenance activities have the potential to affect ESA-listed species and mitigation measures to reduce these impacts to less than significant have been included in the EIS/EIR. They are described below. Concerns have been raised about how DWR and Reclamation will get regulatory permissions to carry out maintenance activities and what DWR and Reclamation will do if landowners will need to carry out maintenance activities in addition to Project maintenance.

Channel Clearing. Chapter 2 includes a description of maintenance activities, and the action alternatives include removal of vegetation and debris from project channels, including the Tule Canal. As indicated in Section 2.4.4.3, "Maintenance activities would include removing vegetation and debris from the project channels annually. Grasses and woody vegetation would be allowed to remain in the channels unless it becomes an obstruction to flow within the passage channel." The text has been revised to state, "Grasses and woody vegetation would be allowed to grow within the proposed transport channel. The grasses and woody vegetation would not be allowed to be higher than the elevation of the adjacent ground outside of the proposed transport

channel or the Tule Pond/Tule Canal within the Fremont Weir Wildlife Area. Therefore, the channel would avoid reducing the flood capacity of the Yolo Bypass.”

Sedimentation Removal. As indicated in Section 2.4.4.1, "Most of the sediment that settles out would be removed through flood maintenance in the Fremont Weir Wildlife Area, as under existing conditions. The additional deposition would be in areas inundated regularly under Alternative 1 (in and around channels), and sediment removal efforts associated with Alternative 1 would focus on the channel system. Alternative 1 would accumulate an additional 37,800 cubic yards of sediment annually that would be removed every five years." Other Alternatives would also need sediment removal activities, as identified in Sections 2.5.4.1, 2.6.4.1, 2.7.4.1, 2.8.4.1, and 2.9.4.1.

As indicated in 6.3.3.2.1 “Maintenance activities would include sediment removal every five years from the proposed transport channel and Tule Pond/Tule Canal within the Fremont Weir Wildlife Area using construction equipment to load and haul it from the bypass; these maintenance activities have the potential to affect water quality in the Yolo Bypass in the same ways as construction activities at the beginning of the project. Maintenance activities would not include dredging in the Sacramento River." Sedimentation within the bypass and Tule Canal would still occur as it does currently during overtopping events, primarily during the receding flows, but the implementation of this project would result in more frequent channelized flows through the Tule Canal System which would have a flushing effect on sedimentation. The area of expected primary sedimentation deposition would occur in the Fremont Weir Wildlife Area where maintenance activities for sediment removal within the channels are included as part of the action alternatives. It is not expected that sedimentation removal would be needed in the Tule Canal, but areas may develop in the future that may require this to be revisited in order to address sedimentation, vegetation and animal impacts (beavers) for specific areas beyond the wildlife area.

ESA Mitigation. As noted in Sections 9.3.3.2.2, 9.3.3.2.3, and 9.3.3.2.5, maintenance effects (including vegetation removal and removal of sediment) on valley elderberry longhorn beetle, giant garter snake, and nesting bird species would be significant. Mitigation Measures MM-TERR-7 (Conduct Valley Elderberry Longhorn Beetle Habitat Surveys Prior to Construction and Maintenance), MM-TERR-12 (Implement Giant Garter Snake Avoidance and Minimization Measures), MM-TERR-14 (Compensate for the Loss of Giant Garter Snake Aquatic and Upland Habitat), and MM-TERR-16 (Conduct Surveys Prior to Construction and Maintenance Activities for Nesting Birds, Establish Nest Buffers, and Monitor Active Nests) would reduce these impacts to less than significant.

Invasive Species. *Myocastor coypus* (nutria) have been found in California within the Delta. Nutria can consume up to 25 percent of their body weight in plant material every day; therefore, they have caused extensive damage to wetlands and agricultural crops in other areas of the country (where they have had high populations) (CDFW undated). CDFW is developing and implementing a plan to eradicate nutria within California. DWR and Reclamation would assist in the Yolo Bypass, where possible, by notifying CDFW of nutria sightings and helping to secure access to these areas.

As described above, the action alternatives include vegetation removal and sediment removal; therefore, they do not need to be included as a mitigation measure. DWR and Reclamation recognize that regulatory permission for the projects’s O&M activities may be necessary and can

be time-consuming. DWR is working with the regulatory agencies to develop a permitted O&M effort through its Environmental Permitting for Operation and Maintenance effort (DWR 2017).

Additional Landowner Maintenance. As described in Chapter 2, the action alternatives include periodic removal of vegetation and debris from project channels, including the Tule Canal. Potential effects of sediment deposition on other lands in the Yolo Bypass are assessed in Chapter 12 (Impact GEO-1) and found to be less than significant. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process. See also Master Response 4: Impacts to Landowners and Other Users of Land.

Comment LA03-60

Comment

ATTACHMENT 1

Chapter 2, Description of Alternatives, Page 2-30

Section 2.4.5: Says DWR will monitor groundwater and work with property owners to implement a physical solution if necessary. Who determines what is necessary? Consideration should be given to empowering an independent third party to make the determination of whether there is an impact and what the appropriate mitigation is. I don't think you want DWR deciding this. I also questions whether their approach to this issue is sufficient to meet CEQA requirements to disclose the project impacts. The safe thing to do would be to identify the impact and mitigation measure and then only implement if the groundwater data confirmed the impact.

Response

Text has been added to indicate that the monitoring effort would identify times when the groundwater levels would be shallower than five feet below ground surface. This indicates the elevation where groundwater levels would be within the crop root zone for surrounding agricultural areas and could affect agricultural productivity for the types of crops surrounding the Yolo Bypass (SJRRP 2017). Groundwater levels sometimes rise to this level under existing conditions because of high flow conditions in the Sacramento River and inundation events in the Yolo Bypass. A physical solution would be considered if this occurs more frequently because of the selected action alternatives (at times when the new gated notch structure allows increased flows into the Yolo Bypass). The comment addresses CEQA requirements, but impacts to agricultural productivity are considered social impacts under CEQA and are not included as an EIR requirement (please see Master Response 4: Impacts to Landowners and Other Users of Land). There is no legal requirement to mitigate for purely socioeconomic impacts caused by a project under CEQA. Discussions relating to mitigation, if any, would take place outside of the CEQA process.

Comment LA03-61

Comment

ATTACHMENT 1

Chapter 3, Approach to the Environmental Analysis

The EIS/EIR does not clearly recognize that the requirements for alternatives analysis under CEQA are substantively different from the requirements for alternatives analysis under NEPA.

Refer to Letter Comment 3-1

Response

See Response to Comment LA03-8.

Comment LA03-62

Comment

ATTACHMENT 1

Chapter 4, Hydrology, Hydraulics, and Flood Control

The impact of increased flows leading to natural recruitment of riparian vegetation was discussed, but not evaluated. A baseline for woody vegetation along the Tule Canal should be evaluated and the project should have an O&M element that maintains this annually. The impacts should be evaluated as part of the project so that at the time the maintenance is conducted mitigation is not required. The Section 7 and CESA consultation should also cover this activity.

Refer to Letter Comment 4-1.

Response

See Response to Comment LA03-59.

Comment LA03-63

Comment

ATTACHMENT 1

Chapter 6, Water Quality, Page 6-6

6.3.3.2.1 Impact WQ-1: Construction activities under Alternative 1 would involve demolition of a portion of the existing Fremont Weir; construction of a headworks structure, intake channel and outlet channel; and grading of the transport channel. These activities could affect water quality temporarily during the construction period. Possibilities include mobilizing sediment and associated contaminants during excavation and grading, release of construction-related chemicals such as oils, fuels, cement, solvents, etc. from improper handling or accidents.

Maintenance activities would include sediment removal every five years within the Fremont Weir Wildlife Area using construction equipment to load and haul it from the bypass; these maintenance activities have the potential to affect water quality in the Yolo Bypass in the same ways as construction activities at the beginning of the project. Maintenance activities would not include dredging in the Sacramento River or Tule Canal."

In addition, the cost and wear and tear on RD1600's pumps could be significant and should be addressed. Without any analysis of the Tule Canal or the pumps, RD1600 has no ability to determine just what the impact will be, whether the existing infrastructure can handle the discharge, and what the additional costs to the District will be. The owners in RD1600 cannot foot the bill to implement this project.

Response

See Master Response 4: Impacts to Landowners and other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment LA03-64

Comment

ATTACHMENT 1

Chapter 6, Water Quality, Page 6-28

MM-WQ-4: Mitigation offered is described in a cursory and vague fashion without any objective standards for the performance of "frequent sampling and reporting" or "coordinat[ing] with the implementation of the current TMDLs for various constituents of concern within the Yolo Bypass." Other aspects of MMWQ- 4 are similarly cryptic and undefined. This mitigation measure must be substantially revised and clarified with respect to methylmercury and other pollutants described in Chapter 6.

Refer to Letter Comment 6-1

Response

See Response to Comment FA01-4.

Comment LA03-65

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-6

Splittail also spawn in numerous other floodplain habitats in the American River, Sutter Bypass, Sacramento and Tuolumne River, but also in the Napa and Petaluma Rivers. These latter populations overlap with CV splittail during certain years. Please see: Quinones and Lusardi

2017. Potential benefits associated with Yolo Bypass Salmonid Habitat Restoration and fish passage proposals. Technical memorandum. April

Response

This section is providing an overview of the Yolo Bypass and is not discussing the effects of project implementation.

Comment LA03-66

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-9

“Both winter-run and spring-run Chinook salmon tend to enter freshwater in a sexually immature state and delay spawning for months while holding in freshwater.” COMMENT: Please include citation (e.g., Moyle 2002)

Response

Citation added.

Comment LA03-67

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-9

There are other major factors that control the abundance and range of Chinook including, at a minimum, other water quality parameters (e.g., dissolved oxygen), food quality and quantity, and biotic interactions (e.g., predation and competition).

Response

Additional factors were identified and included all factors listed in the comment.

Comment LA03-68

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-11

There are other rearing habitats known to support winter-run Chinook. Please also include non-natal habitats recently found in Phillis, C.C., Sturrock, A.M., Johnson, R.C., and Weber, P.K.

2018. Endangered winter-run Chinook salmon rely on diverse rearing habitats in a highly altered landscape . Biological Conservation 217 358-362

Response

Text has been added to identify additional rearing areas including Deer, Mill and Battle creeks, and the lower Feather and American rivers.

Comment LA03-69

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-11

Moyle 2002 states that winter-run Chinook spawn between late April and early August with peak spawning between May and June.

Response

Spawning time period identified in the text encompasses the "late April" to "early August" time period.

Comment LA03-70

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-12

Size at date criteria are highly suspect with up to 40-50% of identified juveniles potentially occurring outside of pre-conceived length brackets. This may particularly be the case for spring-run but also a problem with winter run identification. See Harvey et al. 2014: Harvey, B.N., D.P. Jacobson, and M.A. Banks. 2014. Quantifying the uncertainty of a juvenile Chinook salmon race identification method for a mixed-race stock. North American Journal of Fisheries Management 34: 11777-1186. The limitation of such criteria should be addressed in the document. Perhaps the best place to do so would be in reference to the Salmon Benefits Model considering that Knights Landing data are based on size at date and may over- or under-estimate the contribution of certain runs.

Response

The cited text regarding size at date criteria is referencing NMFS documentation. For detailed limitations of the SBM, refer to Hinkelman et al. 2017 (Appendix G4).

Comment LA03-71

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-12

Moyle 2002 states that spring-run Chinook spawning occurs between late August through October with a peak in mid-September.

Response

Spawning period in the text is referencing the NMFS (2009) Biological Opinion and Conference Opinion on the Long-Term Operations of the Central Valley Project and State Water Project.

Comment LA03-72

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-22

Paragraph 4's topic sentence directly references Yolo Bypass but the supporting literature following discusses floodplains in general. Please clarify if the references referred to the Yolo Bypass floodplain singularly or floodplains in general, including the Yolo Bypass.

Response

Text has been clarified to state where references apply to floodplains in general.

Comment LA03-73

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-30

Section 8.1.3.2.1 - Primary Production seems to largely rely on what's known about suspended primary and secondary production, but benthic processes (benthic algae, periphyton, and benthic invertebrates) are also important. For instance, when referencing "algae" it's not clear if that's being defined as phytoplankton, benthic algae, or a combination of the two. Some discussion of detrital pathways would also be helpful in this section.

Response

Text has been clarified to define "algae". For the purposes of this document, the text focuses on primary production associated with algal sources. As stated on p. 8-30, "...in most floodplain

systems, algae are the primary contributor to the food web, despite the dominant presence of living and detrital plant matter (reviewed by Opperman et al. 2017)."

Comment LA03-74

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-31

“chironomic” typo. Replace with “chironomid”

Response

Text has been edited to address comment.

Comment LA03-75

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-32

Section 8.1.3.2.3 - Downstream Productivity. We think additional studies are warranted on the potential effects of floodplain draining and downstream subsidies to the Delta. The spatial and temporal scale at which such subsidies may exist, and how they may differ between water years, is not clear. While we think that the potential for food web subsidies to exist is possible and may be supported by the literature, we do not think it's appropriate to try and capture "the potential" (page 308) of downstream productivity subsidies based on wetted area inundation scenarios for the purposes of this document because the processes leading to such subsidies are likely complex. The description of such processes and the potential effects are correctly worded (i.e., “may exist”) throughout the document, but the potential benefits of such subsidies appear to be qualitatively tied back to the different alternatives. Recognizing that there may be benefits associated with floodplain exports downstream is important but there is probably not enough data to parse the effects of such subsidies between different alternatives primarily because the magnitude, timing, and spatial extent of floodplain subsidies downstream to the Delta is not well understood nor defined.

Response

This evaluation is intended to be a comparative assessment of the potential for exporting downstream productivity among alternatives using the model output available.

Comment LA03-76

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-36

Paragraph 4 “Ahearn et al. (2006) found that after the floodplain became disconnected after a previous inundation event, a subsequent flood event redistributed elevated amounts of algae on the floodplain, such that hypoxic zones (areas of low dissolved oxygen) were created, resulting in mortality of juvenile Chinook salmon confined to enclosures in a hypoxic zone (Jeffres et al. 2008).” COMMENT: This is confusing because Ahearn et al. (2006) discusses the implications of low oxygen levels and mortality of Chinook but cites ‘Jeffres, unpublished data’ in the Ahearn et al. 2006. However, the citations provided in the EIR/EIS is Jeffres 2008. Mortality in Jeffres (2008) was related to high flow on the floodplain during an inundation event. Please clarify or make sure that the “unpublished data” referenced in Ahearn et al. (2006) is correctly attributed to Jeffres (2008).

Response

Citation clarified.

Comment LA03-77

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-42

Paragraph 1 “Although entrainment by agricultural diversions is not frequently identified as a factor in the decline of Delta fish species, most of these small diversions are not screened (Herren and Kawasaki 2001).” Another citation to support the sentence: Moyle, P. B., and J. A. Israel. 2005. Untested assumptions: effectiveness of screening diversions for conservation of fish populations. Fisheries 30:20-28.

Response

Citation added.

Comment LA03-78

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-43

Paragraph 1. “Even in the deeper, cooler waters of the Toe Drain, water temperatures typically approach the incipient upper lethal temperature for salmonids by late April to early May

(Reclamation and DWR 2012).” Please include either the range of temperatures experienced or a citation for the upper lethal temperature for salmonids and life stage to which the sentence notes.

Response

The range of incipient upper lethal temperatures used in Reclamation and DWR (2012) were included (i.e., 70.7°F to 77.2°F, depending on acclimation temperature).

Comment LA03-79

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-49

Paragraph 1. “Due to the predominance of private land in the Yolo Bypass and the occurrence of avian predation on juvenile salmonids in isolated ponds,...” please provide a citation to support the sentence.

Response

Citation added.

Comment LA03-80

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-49

Section 8.1.4.6 - Predation: Please include a brief discussion of the role of avian predators or the potential for avian predation on juveniles Chinook associated with shallow water and floodplain habitat.

Response

Text has been added to reference avian predation. Discussion of avian predation was included in Section 8.1.3.3.2, Fisheries Floodplain Habitat, in the EIS/EIR.

Comment LA03-81

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-58

Paragraph 4. “Hydrologic, hydraulic, fish behavior, and fish population modeling was performed to provide a quantitative basis from which to assess potential operations-related impacts of the

alternatives on fish species of focused evaluation and aquatic habitats.” COMMENT: We’re not sure how fish behavior was used to provide a quantitative basis for comparison. ELAM, in part, modeled fish behavior but ELAM was not included in the Salmon Benefits Model (SBM) which was the source of quantitative comparison for the alternatives. In the cumulative impacts section ELAM, critical streakline and proportion of flow are qualitatively compared with respect to alternatives, but they are not used as inputs to the SBM. The SBM was the primary model to assess salmon benefits quantitatively (i.e., VSP criteria) and for alternative comparison. However, SBM only used the proportion of flow method to estimate entrainment and the proportion of flow method does not account for fish behavior.

Response

Text has been modified to remove "fish behavior" from this sentence.

Comment LA03-82

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-60

Paragraph 4. “The requirements for conducting analyses under CEQA and NEPA include utilizing the best available information to conduct impact assessments.” COMMENT: ELAM and CSA represent the best available information with respect to entrainment potential onto the Bypass. Entrainment is one of, if not the most, key input variables/rules that determines SBM output and VSP criteria under the different alternatives. While ELAM and CSA were assessed qualitatively at the end of the chapter, they were not explicitly used in the SBM as inputs/rules. These methods, in our opinion, are superior to the proportion of flow method which is essentially a hypothesis with no supporting empirical data. They are superior because both ELAM and CSA look at fish movement (behavior and tracks, respectively) and hydraulics associated with the different alternatives while proportion of flow does not. The proportion of flow method relies on the hypothesis that entrainment is directly proportional to flow diverted onto the bypass. The hypothesis has not been tested and there is no empirical data to support the hypothesis that we are aware of. Further, it’s generally recognized that an individual fish’s position relative to the point of diversion will influence potential entrainment and that fish do not evenly distribute throughout a channel due to secondary flow circulations (Smith et al. 2017 and references therein).

Response

See Response to Comment LA03-12. In addition, see Master Response 2 (Science Review Panel). The Science Review Panel found the existing tools adequate for alternative selection, and Reclamation and DWR are considering potential future model refinements to use different entrainment estimates in the SBM.

Comment LA03-83**Comment**

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-61

Section 8.3.1.2.1 - Analytical Tools. Habitat suitability criteria for Sacramento River juvenile Chinook salmon were used to define suitable floodplain rearing habitat for fry and smolts in the SBM. Those criteria only consider depth and velocity habitat as “suitable” habitat. At a minimum, water temperature should be included. Other factors affecting habitat suitability include food production and/or species interactions. Species interactions may be too difficult (though not impossible) to model, but food production less so. See Corline et al. (2017) for comparison of food resources between floodplain and riverine habitats. Food production, in particular, has the ability to strongly affect habitat selection by salmonids and other fishes. This has been shown to occur even in oligotrophic systems (Weber et al. 2014). Citations: 1) Weber, N., N. Bouwes, and C. E. Jordan. 2014. Estimation of salmonid habitat growth potential through measurements of invertebrate food abundance and temperature. *Canadian Journal of Fisheries and Aquatic Sciences* 71:1158-1170, 2) Corline, N.J., T. Sommer, C.A. Jeffres and J. Katz. 2017. Zooplankton ecology and trophic resources for rearing native fish on an agricultural floodplain in the Yolo Bypass, California, USA. *Wetlands Ecology and Management*. DOI 10.1007/s11273-017-9534-2

Response

Water temperature is addressed in the SBM with the water temperature rearing rule (i.e., fish can not rear beyond June 1) (see p. 18 of Hinkelman et al. 2017). Discussion of the simulation of juvenile Chinook salmon growth is included on pages 19 and 20 of Hinkelman et al. 2017.

Comment LA03-84**Comment**

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-62

Section 8.3.1.2.1 - Analytical Tools. With respect to the different entrainment models and SBM, please explicitly state how each was used to quantitatively assess alternatives. As presented, it appears that each of the three entrainment models were used equally in the alternative analysis, but only the proportion of flow tool was used in the SBM. The SBM was the primary model to assess and compare alternatives with respect to VSP criteria. Some context on how each of the three entrainment models was specifically used with respect to quantitative analysis would be useful.

Response

Description of how each entrainment tool was quantitatively used was included in Section 8.3.1.2.2, Application of Model Output, in the EIS/EIR. Only the Proportion of Flow Approach is identified as being used as input to the SBM.

Comment LA03-85

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-63

Last paragraph (ELAM). COMMENT: Please explicitly state how ELAM was used for analyses purposes and that ELAM was not used in the SBM.

Response

This section (8.3.1.2.1, Analytical Tools) is simply describing the models used in this document. Refer to Section 8.3.1.2.2, Application of Model Output, for a description of how each model was used in this document. For the purposes of this impact assessment, ELAM simulation results were used to inform the relative difference in proportion of juvenile Chinook salmon expected to be entrained through the alternative-specific notch configurations at specific modeled flows. ELAM was not used as input to the SBM.

Comment LA03-86

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-64

Paragraph 4 (Critical Streakline Analysis). COMMENT: Please explicitly state how CSA was used for analyses purposes and that CSA was not used in the SBM.

Response

See Response to Comment LA03-85. For the purposes of this impact assessment, relative differences in estimated juvenile Chinook salmon entrainment rates were compared among the notch configurations of Alternatives 3, 4, and 6. The CSA was not used as input to the SBM.

Comment LA03-87

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-65

Paragraph 2 (proportion of flow tool). COMMENT: Please explicitly state that the proportion of flow tool was the only entrainment tool used in the SBM in order to assess salmon benefits which are tied back to VSP criteria which serve as the basis for alternative comparison.

Response

See Responses to Comments LA03-84 and LA03-85.

Comment LA03-88

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-65

Paragraph 4. COMMENT: Please discuss the additional limitations of the proportion of flow tool with respect to the other entrainment tools. Considering that both ELAM and critical streakline analysis (CSA) look at fish movement (behavior and tracks, respectively) and hydraulics associated with the different alternatives, we're wondering if the 'proportion of flow' method is still useful. The proportion of flow tool has serious limitations because, unlike the other two methods, it does not actually consider the behavior or movement of fish. Instead, it relies on a simple hypothesis that entrainment is directly proportional to flow diverted onto the bypass. The hypothesis has not been tested and there is no empirical data to support the hypothesis that we are aware of. Further, it's generally recognized that an individual fish's position relative to the point of diversion will influence potential entrainment and that fish do not evenly distribute throughout a channel due to secondary flow circulations (Smith et al. 2017 and references therein). In looking at acoustic movement data near Fremont Weir, Steel et al. 2016 found that different runs (winter and late fall) displayed non-uniform distributions across the channel. Finally, Smith et al. (2017) found that while larger notches generally increased entrainment, entrainment was not proportional to flow. Blake et al. (2017) found that the location of each modification scenario significantly impacted entrainment with entrainment varying as much as 400% based on where the scenario was located. We remain concerned about the proportion of flow tool as used to estimate entrainment in the SBM and believe it's the weakest of the three tools that are available. Specifically, some acknowledgement and reasoning of why the proportion of flow tool was used in SBM instead of the more robust models is warranted. Our understanding is that ELAM and CSA tools came online a bit later and the proportion of flow tool may be an artifact of earlier analysis with respect to the SBM. Still, some discussion of why an inferior tool was used in the SBM (especially considering that SBM is the primary model to assess salmon benefits) despite its limitations is necessary.

Response

See Response to Comment LA03-12.

Comment LA03-89

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-65

Paragraph 4. “One limitation of this tool is that entrainment onto the Yolo Bypass is assumed to equal the proportion of flow diverted onto the floodplain from the Sacramento River.”

COMMENT: This relies on the assumption that fish are equally distributed throughout the channel and water column in the Sacramento River near Fremont Weir. We know this is not true and that the acoustic telemetry data from Steel et al. 2016 does not support this assumption. We also know that fish entrainment is not equal to the proportion of flow diverted onto the floodplain based on Smith et al. (2017) (i.e., ELAM).

Response

See Response to Comment LA03-12.

Comment LA03-90

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-66

Paragraph 2. COMMENT: Thank you for including qualitative analysis of the effects of different entrainment tools on potential SBM output results at the end of Chapter 8, under alternative comparison. We recommend incorporating the results of ELAM, CSA and Proportion of flow into some sort of composite prediction of entrainment onto the bypass. We continue to be uncomfortable with the use of proportion of flow as the sole predictor of entrainment onto the bypass when we believe other superior entrainment models could add value to the SBM and outputs with respect to alternative analysis.

Response

See Response to Comment LA03-12.

Comment LA03-91

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-66

Paragraph 2. “The SBM uses the “proportion of flow” approach such that the number of juveniles assumed to be entrained into the Yolo Bypass is proportional to the amount of Sacramento River flow diverted into the Yolo Bypass.” COMMENT: Please specifically explain

why proportion of flow was used as opposed to ELAM or CSA despite 1) the latter two methods being far more robust and 2) the results of ELAM specifically found that entrainment was not proportional to flow. Please discuss why a combination of models which may provide associated estimates of entrainment error were not used.

Response

See Response to Comment LA03-12.

Comment LA03-92

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-66

Paragraph 3. COMMENT: Hinkelman et al. 2017 parameterized rearing survival at 0.99 and when they evaluated rearing survival at .97 and .95 in the Effects Analysis, the benefits accrued under Alternative 6 were too low to yield a benefit or were negligible. Considering the importance of the model and assumptions to the overall project analysis, we think it would be appropriate to discuss why the rearing rule and rearing survival assumptions were not targeted for additional investigation prior to finalizing the SBM document. At a minimum, a range of model results based on different rearing survival parameters (and possibly entrainment tools) that quantify the expected extent of deviation base on the use of different parameters would be useful.

Refer to Letter Comment 8-2

Response

See Response to Comment LA03-15.

Comment LA03-93

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-66

Paragraph 3. COMMENT: In the draft version of the SBM (Hinkelman et al. 2017, May 4th), an Effects Analysis was used to understand model sensitivity to different input parameters or modeling rules and included analysis on entrainment by examining SBM sensitivity to entrainment rules as estimated by 1) the proportion of flow method and 2) ELAM. Please include the results of this analysis in this paragraph in addition to the rearing rule and rearing survival analysis that is already present. Please also include the entrainment effects analysis results (proportion of flow vs. ELAM or “entrainment rules” effects analysis) in the appropriate appendix that accompanies the draft EIR/EIS (G4). Please discuss the implications of these results with respect to all SBM output with specific mention of the ability of the entrainment rule to influence SBM output. Alternatively, if that analysis is for some reason presented elsewhere in

the draft EIR/EIS, please acknowledge that here. Currently, we do not see the results of the ELAM effects analysis in Chapter 8 of the EIR/EIS nor the SBM appendix (G4).

Refer to Letter Comment 8-3

Response

See Response to Comments LA03-15 and LA03-16. Chapter 8 of the EIS/EIR summarizes the entrainment results for each of the three methodologies (Proportion of Flow, Critical Streakline Analysis, and ELAM). Section 8.5.1.4 *Entrainment Summary* of the EIS/EIR describes the potential implications of using other entrainment methodologies besides Proportion of Flow with respect to the SBM output.

Comment LA03-94

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-71

Paragraph 3. “Multiple methods were applied by the Lead Agencies to assess and evaluate the proportion of emigrating juvenile Chinook salmon that could be entrained into the Yolo Bypass associated with different Fremont Weir notch configurations and different notch flow capacities, as described below.” COMMENT: Please note here how each model was used with respect to alternative analysis and that only the proportion of flow method was used in the SBM.

Response

Text has been added to clarify that the proportion of flow approach was the only methodology used to estimate entrainment in the SBM. In addition, Section 8.3.1.2.2, Application of Model Output, of the EIS/EIR describes how each entrainment methodology was used in this document.

Comment LA03-95

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-71

Paragraph 4. “Similar dispersion assumptions have been used to evaluate juvenile salmon entrainment into the central Delta using particle tracking (Kimmerer and Nobriga 2008).” COMMENT: Kimmerer and Nobriga 2008 state: “To the extent that fish behave passively (emphasis added), this model is probably suitable for describing Delta-wide movement, but is less suitable for smaller scales or alternative configurations of the Delta.” We're not sure this article supports the use of the proportion of flow approach because we know that salmon are not passive nor particles subject to fate and transport and exhibit strong swimming behaviors. We also know from the other entrainment models (ELAM and CSA) that entrainment is likely not proportional to flow.

Response

See Response to Comment LA03-12.

Comment LA03-96

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-72

Paragraph 1. COMMENT: Please explicitly state that ELAM was not included in the SBM to estimate entrainment.

Response

See Response to Comment LA03-94.

Comment LA03-97

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-72

Paragraph 2. COMMENT: Please explicitly state that CSA was not included in the SBM to estimate entrainment.

Response

See Response to Comment LA03-94.

Comment LA03-98

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-72

Paragraph 3. "It should be recognized that the suitability of floodplain habitat for a given species and life stage may be affected by factors other than water depth and velocity, including substrate type, the presence and type of instream cover, water temperature, and dissolved oxygen levels." COMMENT: Please also include biotic interactions (predation and competition) and food availability. In addition to depth and velocity, there should be some discussion of other abiotic factors affecting floodplain suitability including (at a minimum): timing of floodplain inundation, period of inundation, and rate of recession off the floodplain, residence time, and temperature.

Response

Additional factors potentially affecting floodplain habitat were added. The SBM accounts for timing of floodplain inundation with respect to the timing of juvenile Chinook salmon emigration and water temperature (see Hinkelman et al. 2017). The modeled frequency and duration of inundation of the Yolo Bypass was evaluated with respect to primary and secondary production for each alternative in the EIS/EIR.

Comment LA03-99

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-114

Paragraph 3. "Modeling results indicate that annual average adult returns under Alternative 1 relative to Existing Conditions would be higher over the entire simulation period and by water year type for fall-run and spring-run Chinook salmon (Table 8-8)." COMMENT: Replace "higher" with "somewhat higher" (i.e., <10%) for spring run (7%) and fall run (6%).

Response

Text has been revised to "similar" and terminology defining quantitative differences under an alternative relative to existing conditions was clarified in Section 8.3.1.2.2, Application of Model Output. "Higher" was not revised to "somewhat higher" because the difference could be confusing.

Comment LA03-100

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-114

Paragraph 3. "Annual average adult returns would be similar or slightly lower for late fall-run Chinook salmon and similar or slightly higher for winter-run Chinook salmon under Alternative 1 relative to Existing Conditions." COMMENT: For winter-run, it should be "similar" under all scenarios (<5%). Also, not sure where "slightly higher" is defined in the document. The terminology reflective of the percentages can be somewhat confusing. Recommend including a table defining substantial (10% or greater), somewhat higher (5-9%) or similar (0-4%) (definitions from page 106, paragraph 1) in addition to the text already provided.

Response

Text has been revised to "similar" and terminology defining quantitative differences under an alternative relative to existing conditions was clarified in Section 8.3.1.2.2, Application of Model Output.

Comment LA03-101**Comment**

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-122

Section Comment - Entrainment into the Yolo Bypass: We appreciate the addition of ELAM and other entrainment inputs/methods as discussed here, the other alternative sections, and again at the end of the chapter when the three methods and estimates are qualitatively compared. We think this is an important improvement. However, we still do not know the sensitivity of the SBM to different entrainment values/inputs/rules based on the different methods used. Our suggestion is to run the different entrainment estimates (where they have already been calculated for different alternatives from ELAM, CSA, and Prop. of flow) through the SBM to 1) provide an idea of SBM sensitivity to entrainment rules or 2) provide a range of entrainment values as inputs into the SBM, which would produce a range of SBM outputs. The latter situation would provide greater confidence in the estimates produced for alternative comparison purposes.

Response

The purpose of the SBM is to provide a comparison of fisheries benefits between the alternatives. The EIS/EIR does not need to include all potential permutations for the results to be able to be used to compare alternatives. See Master Response 2 (Science Review Panel) for information about using different entrainment estimates in the SBM.

Comment LA03-102**Comment**

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-151

Section Comment - CEQA Conclusion and throughout: We think there is uncertainty related to the number of fish entrained because the proportion of flow method was the only entrainment method used in the SBM despite its clear limitations. We appreciate the addition of all qualitative analysis aiming to compare potential differences between the three entrainment models and their potential effects on SBM and VSP criteria. However, we think the SBM analysis would be strengthened if all three models were explicitly applied in the SBM which would provide a range of entrainment inputs and, thus, a range of response variable outputs from the SBM. Such an approach would provide a confidence interval around entrainment and SBM model output and allow for better comparison between alternatives. The other alternative is to provide a sensitivity analysis on the entrainment rule and its ability to produce changes in SBM output (based on prop of flow, ELAM, CSA). If SBM output exhibits little change regardless of which entrainment rule is used, then a qualitative analysis (such as currently presented) should suffice. However, if the entrainment rule has the potential to produce large swings in SBM output and thus VPS criteria, it appears that the SBM would benefit from a range of entrainment estimates to produce a range of outputs which could provide greater confidence in overall comparison between alternatives.

Response

From a CEQA perspective, even a small beneficial impact is characterized as a beneficial impact. The need for additional precision to identify the size of the beneficial impact is not necessary as part of CEQA compliance. The EIS/EIR includes the best available tools and has multiple tools to characterize each alternative. See Master Response 2 (Science Review Panel) for information about using different entrainment estimates in the SBM.

Comment LA03-103

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-152

Paragraph 4. “However, because 1) the SBM modeling was conducted using the proportion of flow approach to estimate juvenile entrainment into the Yolo Bypass, 2) the ELAM modeling indicates lower maximum entrainment rates for Alternative 3 relative to Alternative 1, and 3) the critical streakline analysis predicts lower total annual average entrainment rates by run than the proportion of flow approach, the indicators of the VSP parameters under Alternative 3 may be less beneficial than shown for Alternative 1.” COMMENT: Please quantify specific numerical changes in the indicators of VSP using ELAM, proportion of flow, and CSA.

Response

The three methods of estimating juvenile Chinook salmon entrainment into the Yolo Bypass are not intended to be directly comparable at a quantitative level due to differences in the analytical methodologies. Therefore, it is not considered to be appropriate to attempt to quantify differences in the indicators of VSP using the ELAM, proportion of flow, and CSA entrainment methodologies. The relative differences in the indicators of VSP are modeled based on relative differences in conditions under the Project Alternatives relative to existing conditions. The proportion of flow entrainment methodology is the only entrainment methodology available to estimate entrainment under the Project Alternatives relative to existing conditions. Therefore, no further relative quantification of indicators of VSP is attempted using other entrainment methodologies under the Project Alternatives relative to existing conditions.

Comment LA03-104

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-176

Paragraph 2. “Therefore, inundation extent and/or duration of the Yolo Bypass would increase during these months, potentially providing for increased hydraulic habitat availability for fish species of focused evaluation, particularly juvenile salmonids and adult and juvenile Sacramento splittail.” COMMENT: It's not clear why "potentially" is used here but not in other locations in

the document. We agree that increased inundation extent/duration would lead to increases in hydraulic habitat for fishes of interest.

Response

Text has been edited to remove "potentially."

Comment LA03-105

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-179

Paragraph 2. "Modeling results indicate that Chinook salmon smolt hydraulic habitat availability would be higher under Alternative 1 relative to Existing Conditions over about 60 percent of the cumulative probability exceedance distribution (Figure 8-30)." COMMENT: This should be alternative 4a and 4b, not Alternative 1. Alternative 1 is not part of Figure 8-30.

Response

Text has been edited to "Alternative 4a and 4b."

Comment LA03-106

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-201

Last paragraph (here and throughout document). "Because the SBM modeling was conducted using the proportion of flow approach to estimate juvenile entrainment into the Yolo Bypass, the indicators of the VSP parameters presented for Alternative 4 may be less beneficial than shown if the critical streakline entrainment estimates were applied." COMMENT: Entrainment estimates based on different methods (CSA vs. prop of flow, etc.) may not produce linear responses within the SBM. So, a small decrease in the number of entrained fish (based on method) may actually lead to large differences in SBM output and VSP criteria. Without quantifying the sensitivity of the SBM to different entrainment rules, it's difficult to understand how changes in those rules will actually affect SBM output.

Response

This statement is indicating that the magnitude of the beneficial effects could change, but they would still be beneficial (under CEQA). See Master Response 2 (Science Review Panel) for information about using different entrainment estimates in the SBM.

Comment LA03-107

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-223

Last paragraph. See comment for PG. 8-32. We think additional studies are warranted on the potential effects of floodplain draining and downstream subsidies to the Delta. Please provide citation of such instances where such subsidies or floodplain exports have been linked to the growth and survival of Delta resident species such as delta smelt.

Response

Potential relationships between Yolo Bypass hydrology and downstream productivity are discussed in Section 8.1.3.2.3, Downstream Productivity. No studies are available which have explicitly addressed relationships between Yolo Bypass hydrology and growth and survival of Delta resident fish species. Accordingly, the sentence "The potential for increased productivity downstream of the Yolo Bypass also could improve growth and survival of fish species of focused evaluation, particularly Delta resident species such as delta smelt" was revised to state, "The potential for increased productivity downstream of the Yolo Bypass could improve prey availability conditions for fish species of focused evaluation."

Comment LA03-108

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-223, Figures 8-88; 8-89; 8-90

COMMENT: Please include percentages entrained relative to existing conditions as estimated by ELAM and Critical Streakline Analysis for those alternatives where it has been calculated.

Response

Entrainment estimates under existing conditions using ELAM and Critical Streakline Analysis are not available.

Comment LA03-109

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-281

Paragraph 3. "The ELAM modeling also was used by the Lead Agencies to estimate relative entrainment rates of juvenile salmonids into the Yolo Bypass for each Alternative (see Appendix 1 of Smith et al. 2017)." COMMENT: Please explicitly state that despite the discussion of

ELAM in estimating percent entrained in this section, ELAM was not used in the SBM and the SBM it key to the VSP and to salmonids benefits analysis regarding alternative analysis. Please see comment for PG. 8-65 RE paragraph 2, proportion of flow tool.

Response

See Response to Comment LA03-94.

Comment LA03-110

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-283

Last paragraph. "For Alternatives 3 and 4, reduced critical streakline entrainment estimates relative to the proportion of flow estimates indicate that fewer juveniles would be entrained into the Yolo Bypass; therefore, benefits shown for the SBM juvenile and adult metrics would be reduced with the critical streakline entrainment rates." COMMENT: What benefits would be reduced and how much would they be reduced by?

Response

The "SBM juvenile and adult metrics" refer to the adult returns, variation in juvenile size, and variation in juvenile estuary entry timing metrics simulated by the SBM. Differences in the simulated SBM metrics were not quantified under the critical streakline analysis entrainment methodology relative to the proportion of flow entrainment methodology.

Comment LA03-111

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-283

Last paragraph. "However, for Alternative 6, application of the proportion of flow entrainment estimates underestimate the number of juveniles entrained into the Yolo Bypass relative to the critical streakline analysis; therefore, the SBM output may underestimate the benefits of Alternative 6 with respect to the juvenile and adult metrics relative to the other alternatives." COMMENT: Which benefits might be underestimated and by how much?

Response

See Response to Comment LA03-110.

Comment LA03-112

Comment

ATTACHMENT 1

Chapter 8, Aquatic Resources and Fisheries, Page 8-296

Section header (8.5.4) “Increase Aquatic Primary and Secondary Biotic Production to Provide Food Through an Ecosystem Approach.” COMMENT: The word “biotic” is unnecessary as used here.

Response

This language is taken directly from the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Implementation Plan (Reclamation and DWR 2012).

Comment LA03-113

Comment

ATTACHMENT 1

Chapter 9, Vegetation, Wetlands, and Wildlife Resources, Page 9-76, Section 9.3.3.2.9

Impact TERR-9: The EIS/EIR fails to analyze the impact of additional flooding from the proposed project on USACE, RWQCB, and CDFW jurisdictional wetlands. DWR and the Bureau should complete this analysis and recirculate the EIS/EIR so the public can review this important analysis.

Refer to Letter Comment 9-5

Response

See Responses to Comments SA01-16 and LA03-21. The EIS/EIR has adequately assessed the effects including disclosure of the significance of the effects under CEQA.

Comment LA03-114

Comment

ATTACHMENT 1

Chapter 9, Vegetation, Wetlands, and Wildlife Resources, Page 9-85, Section 9.3.3.2.11

Impact TERR-11: Please revise this impact (and this chapter more generally) to include a complete analysis of the potential for conflict with the Yolo HCP/NCCP, such as the overlap of the project with areas the Yolo Habitat Conservancy has identified as important giant garter snake habitat, and recirculate the document to allow stakeholders such as the YHC to properly consider the analysis and results.

Refer to Letter Comment 9-1

Response

Refer to IMPACT-TERR-3 (Potential Disturbance or Mortality of and Loss of Suitable Habitat for Giant Garter Snake) throughout the document for a discussion of potential operations effects (included at the end of each section before the CEQA conclusion), which were determined to be significant for all alternatives. See Response to Comment LA03-18.

Comment LA03-115**Comment**

ATTACHMENT 1

Chapter 9, Vegetation, Wetlands, and Wildlife Resources, Page 9-85, Section 9.3.3.2.11

Impact TERR-11: The analysis provided in this section and elsewhere in this chapter relating to conflicts with the Yolo HCP/NCCP is conclusory. No evidence or analysis is provided to support the discussion. Also, please correct the citation used. While ICF is a YHC consultant, they are not the lead agency or regulatory author of the plan. Please cite the YHC as the author of the Yolo HCP/NCCP and its related EIR.

Refer to Letter Comment 9-6

Response

See Response to Comment LA03-18.

Comment LA03-116**Comment**

ATTACHMENT 1

Chapter 9, Vegetation, Wetlands, and Wildlife Resources, Page 9-42, Section 9.3.2

Section is missing the mandatory discussion of the following issues (CEQA Guidelines Section 15065(a)(1)): 1) whether the project has the potential to substantially degrade the quality of the environment; 2) whether the project has the potential to substantially reduce the habitat of a fish or wildlife species; 3) whether the project has the potential to cause a fish or wildlife population to drop below self-sustaining levels; and 4) whether the project threatens to eliminate a plant or animal community. Please revise Section 9.3.2 to include these mandatory thresholds, and please revise this Chapter to include an analysis of these impacts, including substantiated conclusions, and feasible mitigation.

Refer to Letter Comment 9-2

Response

See Response to Comment LA03-19.

Comment LA03-117

Comment

ATTACHMENT 1

Chapter 9, Vegetation, Wetlands, and Wildlife Resources

All missing areas of impact analysis identified in this chapter could be feasibly lessened or avoided by including reasonable and feasible mitigation measures.

Refer to Letter Comment 9-3

Response

Mitigation measures referenced for potential significant construction related effects on potential disturbance or mortality of nesting bird species and loss of suitable nesting and foraging habitat include the following: MM-TERR-2: Designate a Project Biologist; MM-TERR-3: Implement a Worker Environmental Awareness Program ; MM-TERR-4: Implement General Wildlife Protection Measures; MM-TERR-5: Establish Project Limits; MM-TERR-6: Designate Construction Staging and Vehicle Use Requirements; MM-TERR-11: Prepare and Implement a Compensatory Restoration Plan for Sensitive Vegetation Communities; and MM-TERR-16: Conduct Surveys Prior to Construction and Maintenance Activities for Nesting Birds, Establish Nest Buffers, and Monitor Active Nests. These measures are not only feasible, but they will educate workers about potential nesting birds, require that a designated Project Biologist conduct preconstruction surveys for nesting birds and set up buffers to protect nesting birds until their young have fledged, and require compensation for permanent impacts to nesting habitat, and mitigation/restoration for the temporary loss of nesting habitat, thereby reducing these impacts to less than significant. See Response to Comment NG04-17 for support for determination that operations effects are not considered significant and do not, therefore, warrant additional mitigation.

Mitigation measures referenced for potential significant construction related effects on USACE, RWQCB, and CDFW jurisdictional wetlands, waters, and riparian areas include the following: MM-TERR-2: Designate a Project Biologist; MM-TERR-3: Implement a Worker Environmental Awareness Program ; MM-TERR-5: Establish Project Limits; MM-TERR-6: Designate Construction Staging and Vehicle Use Requirements; MM-TERR-11: Prepare and Implement a Compensatory Restoration Plan for Sensitive Vegetation Communities; MM-WQ-2: Implement a spill prevention, control, and countermeasure plan; and MM-WQ-3: Implement a stormwater pollution and prevention plan. These measures are not only feasible, but they require mitigation for temporary and permanent impacts to jurisdictional wetlands via establishment, enhancement, or preservation of habitat, thereby reducing these impacts to less than significant. See Response to Comment NG04-18 for support for determination that operations effects are not considered significant and do not, therefore, warrant additional mitigation.

Comment LA03-118**Comment**

ATTACHMENT 1

Chapter 9, Vegetation, Wetlands, and Wildlife Resources

No analysis is presented to support the conclusion that there is no impact from operations of the Yolo Bypass Salmonid Project on wetlands and nesting and foraging habitat. The Yolo Basin Foundation has pointed out that nesting can start as early as February and additional inundation in the Bypass could affect food supply. The County also could not find any analysis in the EIS/EIR to support the conclusion that the Yolo Salmonid Project will not affect wetlands. The analysis is deficient and should include additional analysis of these potential impacts.

Refer to Letter Comment 9-4

Response

See Responses to Comment SA01-16 and LA03-21.

Comment LA03-119**Comment**

ATTACHMENT 1

Chapter 9, Vegetation, Wetlands, and Wildlife Resources

The project footprint overlaps with habitat for species covered by the Yolo HCP/NCCP, such as giant garter snake and western pond turtle. The Yolo Habitat Conservancy is providing maps of this habitat as part of its comment letter on the project. The agencies did not analyze potential conflicts as part of the EIS/EIR

Refer to Letter Comment 9-7

Response

See Response to Comment LA03-18. Operations effects within the YBWA are included under a general discussion of effects within the operations study area, which encompasses the entire Yolo Bypass, not just the YBWA. Refer to IMPACT-TERR-3 (Potential Disturbance or Mortality of and Loss of Suitable Habitat for Giant Garter Snake) throughout the document for a discussion of potential operations effects (included at the end of each section before the CEQA conclusion), which were determined to be significant for all alternatives.

Comment LA03-120**Comment**

ATTACHMENT 1

Chapter 10, Cultural Resources, Page 10-3

The first paragraph on page 10-3 states that the Reclamation District 1600 Tule Canal (P-57-000414) is not eligible for listing on the California Register of Historical Resources (CRHR) or the National Register of Historic Places (NRHP). However, this same resource is listed in Table 10-1 as potentially eligible for both the CRHR and the NRHP. The Final EIR/EIS should clarify this discrepancy and discuss whether the project could adversely affect this potentially eligible resource.

Response

The comment indicated Table 10-1 lists it as eligible. Table 10-1 is a list of previous cultural resources investigations. Table 10-2 lists previously recorded site, including P-57-000414, and lists the site as Not Eligible. Table 10-4 lists all sites identified as a result of the cultural studies and again lists P-57-000414 as not eligible. The text description of P-57-000414 in Section 10.1.1.4.2 also lays out the NRHP evaluation which recommends it as not eligible pending SHPO concurrence.

Comment LA03-121

Comment

ATTACHMENT 1

Chapter 10, Cultural Resources, Page 10-4

The discussion of paleontological resources on page 10-4 references the fossil bearing Pleistocene Modesto formation whereas the discussion on page 10-12 references non-fossil bearing Holocene-age sediments. The Final EIR/EIS should clarify these two references and indicate whether the project site has the potential to contain paleontological resources, and if so, whether mitigation measures are necessary to minimize the potential disturbance of these resources during construction activities.

Response

Section 10.3.2.2.1 states “The background research revealed that the fossil bearing Pleistocene Modesto formation may be present within the Lower Sacramento River floodplain. The Pleistocene Modesto formation consists of alluvial terraces and fans dating between 9,000 and 75,000 years ago). There are no documented fossiliferous materials in the APE.” Although there may be paleontological resources in the Sacramento River floodplain, none of the fossiliferous forming strata have been located within the area of potential effect.

Comment LA03-122

Comment

ATTACHMENT 1

Chapter 10, Cultural Resources, Page 10-5

The Final EIR/EIS should explain why additional geoarchaeological testing was conducted in October 2017 and why the results of this testing were not included in the Draft EIR/EIS.

Response

The geoarchaeological testing information contains confidential information regarding sensitive environmental resources. These materials are restricted from distribution to the public based upon concerns that damage to the resource could occur. These data will be provided to the regulatory permitting entities during the permitting process. The issue regarding disclosure of information to the public regarding sensitive resources was litigated in the Clover Valley Foundation v. City of Rocklin, the Third District Court of Appeal case. The case found that the agencies may withhold from public disclosure detailed information about the precise location and contents of potentially affected Native American cultural sites in order to safeguard those sites from looting, despite CEQA's otherwise stringent information-disclosure mandates.

Comment LA03-123

Comment

ATTACHMENT 1

Chapter 10, Cultural Resources, Page 10-23

The discussion under Impact CULT-2 for the six alternatives acknowledges that a cultural resources inventory has never been conducted in the majority of the footprint of Alternative 1 and states that additional prehistoric archaeological resources are likely to be found in the portion of the footprint where surveys have not been conducted. It is unclear why the entire area of potential effect has not been surveyed, considering the initial cultural resource investigations for this project commenced in 2014. It is also unclear why these surveys are being deferred to after completion of the environmental review process. If the unevaluated areas are assumed to contain prehistoric sites that are large and rich in material remains, including human burials and associated ornaments and beads, as acknowledged under Impact CULT-2, then it is inappropriate to defer the evaluation of these resources until after completion of the environmental review process. Without providing decision makers and the public with an opportunity to understand the project's actual impacts on sensitive cultural resources and to determine whether the identified mitigation measures would actually reduce these impacts to less-than-significant levels, the Draft EIR/EIS is not meeting CEQA's fundamental disclosure purposes. Complete surveys of the sensitive cultural resources located within the area of potential effect should be conducted and a full assessment of the project's effects on these resources should be prepared and circulated for public comment prior to finalizing the environmental documents.

Refer to Letter Comment 10-1

Response

See Response to Comment LA03-26.

Comment LA03-124

Comment

ATTACHMENT 1

Chapter 10, Cultural Resources

It is difficult to understand why the impact significance conclusion following implementation of feasible mitigation is reduced from “significant” to “less than significant” for CULT-1, CULT-2, and CULT-4. While the County understands that mitigation proposed to reduce impacts CULT-1, CULT-2, and CULT-4 may be somewhat effective, the discussion in Chapter 10 makes clear it is unlikely to be entirely effective and that some damage or destruction of cultural resources may result. On this basis, it seems each impact should be “significant and unavoidable” for the same reason that the impact analyzed in CULT-3 is deemed “significant and unavoidable”—i.e., there is insufficient information about the potential magnitude of each impact, even with implementation of feasible mitigation, to determine whether the permanent destruction of affected resources will be “less than significant.” These impact conclusions are thus unsubstantiated and legally improper.

Refer to Letter Comment 10-2

Response

See Response to Comment LA03-27.

Comment LA03-125

Comment

ATTACHMENT 1

Chapter 11, Land Use and Agricultural Resources

Chapter 11 assumes the project will not convert farmland, despite a discussion in Chapter 16: Socioeconomics that whether the USDA will continue to support preventative planting insurance remains unknown. Further analysis of the potential for this change should appear in the EIS/EIR because, if preventative planting insurance is eliminated and farmland is effectively converted as a result, it could lead numerous other indirect impacts on habitat values, flood conveyance, and other aspects of the current environment setting evaluated in the EIS/EIR. It’s critical to have this information now in assessing the potential impacts of the project under both CEQA and NEPA.

Refer to Letter Comment 11-1

Response

See Responses to Comments LA03-28 and LA03-34.

Comment LA03-126**Comment**

ATTACHMENT 1

Chapter 11, Land Use and Agricultural Resources

When evaluating the cumulative impacts in the Yolo Bypass, the analysis assumes away any incompatibility between this project and those identified in the EIS/EIR or any changes in land use designation, even though there may be changes in land use. The basis for these assumptions is not altogether clear. Incompatibilities or changes in land use or land use designation could change the conclusions drawn from this analysis. A sensitivity analysis would reveal potential cumulative impacts that are significant. A sensitivity analysis would likely reveal a wide range of possibilities that are not apparent when considering avg. annual outcomes.

Refer to Letter Comment 11-2

Response

The cumulative discussion has been extended to include more information on the potential impacts from the Lower Elkhorn Basin Levee Setback Project and the Lower Yolo Ranch Restoration Project. However, full impact analysis would be provided by the environmental documentation associated with each project.

See Responses to Comments LA03-29 and LA03-195.

Comment LA03-127**Comment**

ATTACHMENT 1

Chapter 11, Land Use and Agricultural Resources

The analysis does not even attempt to quantify or even qualitatively describe potential farmland conversions with the Lower Elkhorn Basin Levee Setback Project (e.g. hundreds of acres) and other projects, such as Lower Yolo Ranch (over 1,000 acres). This analysis should be updated to reflect the potential farmland conversions that will result from these and other reasonably foreseeable projects.

Refer to Letter Comment 11-3

Response

See Response to Comment LA03-126.

Comment LA03-128

Comment

ATTACHMENT 1

Chapter 11, Land Use and Agricultural Resources

Analysis of field preparation time needs to include evaluation of additional Toe Drain/Tule Canal flows. The County is concerned that the estimate of 34 days for drying, preparation, and planting does not include additional drainage time that will result because the Toe Drain/Tule Canal contains additional water from the operable gate in the Fremont Weir. The estimate of 34 days should be updated after this analysis is completed.

Refer to Letter Comment 11-4

Response

Field preparation time is an independent variable and the 34-day drying time does not take place until water has drained from the fields. The time it takes for water to drain off of the fields is simulated by the hydraulic model and does not account for the volume of water in the Tule Canal/Toe Drain.

Comment LA03-129

Comment

ATTACHMENT 1

Chapter 11, Land Use and Agricultural Resources

The analysis provides results of avg. impacts from the alternative projects; however, environmental conditions may include consecutive bad years when flooding could delay planting every year over a 3-5 year period, as is considered in the tipping point analyses or even longer. Results are presented over time but do not consider cumulative effects through time. Figures show effects each year, however, there is no evaluation of the implications from frequency of repeated annual flooding. Long-term hydrological conditions seem relevant, especially in light of recent and expected future climatic conditions.

Response

See Response to Comment LA03-29.

Comment LA03-130

Comment

ATTACHMENT 1

Chapter 11, Land Use and Agricultural Resources

It is not clear how grazing lands are handled. What are these lands used for if not for grazing? How were these lands parameterized for the analysis if they were used for a purpose other than grazing? Grazing land acreage comprises over 40% of the farmed acreage in the Yolo Bypass. How are the returns to these lands reflected in the analysis so they capture these other uses so as not to distort the conclusions?

Response

The qualitative discussion on the socioeconomic impacts on grazing lands within the bypass can be found in Chapter 16, *Socioeconomics*, under Impact SOC-2 (on pages 16-16, 16-27, 16-32, and 16-38).

Comment LA03-131

Comment

ATTACHMENT 1

Chapter 11, Land Use and Agricultural Resources

A better explanation of the threshold on what it means to be designated significant is needed if it is not given elsewhere in the EIS/EIR.

Response

Additional information has been added to Section 11.3.2 Thresholds of Significance - CEQA to provide additional explanation on what a significant impact would entail.

Comment LA03-132

Comment

ATTACHMENT 1

Chapter 11, Land Use and Agricultural Resources, Page 11-5, Table 11-1

Add total land for the Bypass area in table.

Response

A row has been added to Table 11-1 to present the total number of acres in the Yolo Bypass.

Comment LA03-133

Comment

ATTACHMENT 1

Chapter 11, Land Use and Agricultural Resources, Page 11-6-9, Tables 11-2; 11-3; 11-4; 11-5

It is not clear what purpose this information serves in analyzing land use in the Bypass.

Response

Tables 11-2 through 11-5 provide context for land uses in the counties associated with the Yolo Bypass. The tables provide a basis for and indicate historical trends related to changes in agricultural land designations and Williamson Act enrollment in the area. Seeing typical fluctuations in acreages helps inform what is typical, expected, normal, or acceptable changes which helps compare potential impacts.

Comment LA03-134

Comment

ATTACHMENT 1

Chapter 11, Land Use and Agricultural Resources, Page 11-7

Report states "Yolo County acres in the Yolo Bypass are 82 percent or 57,689 acres." This measure is inconsistent with the total area shown in Table 11-1. Should be corrected.

Response

The discrepancy in the total acreages of the bypass and the portion within Yolo County has been corrected.

Comment LA03-135

Comment

ATTACHMENT 1

Chapter 11, Land Use and Agricultural Resources, Page 11-15

It is not clear what the methods for analysis implies about conversion of unique farmland, prime farmland, or farmland of statewide importance, particularly under Alt. 4, where we see declines in these acres. If we see large changes in land use, it should affect the net returns in the area and subsequently the IMPLAN analysis reported in Chap. 16 that relies on the results from the BPM analysis.

Response

The permanent changes in Prime Farmland, Unique Farmland, and Farmland of Statewide Importance are small, not large changes as discussed in the comment. The BPM model focuses on impacts associated with increased inundation; therefore, it did not include land conversion associated with Alternative 4. Regional Economic Impacts from land conversion due to construction under Alternative 4 have been discussed in a qualitative manner under Section 16.3.3.5.2, Changes to regional economics from construction of new facilities.

Comment LA03-136**Comment**

ATTACHMENT 1

Chapter 11, Land Use and Agricultural Resources, Page 11-15, Section 11.3.1

What are some of the incompatible uses and adverse effects of changes in land use? Why is this statement relevant to the EIS/EIR?

Response

Incompatible uses are all uses that are not consistent with the documented/contracted uses for the land or those that will conflict with land uses on adjacent lands. Here, it means uses that are inconsistent with direct agricultural use and/or uses that support agricultural production. Adverse effects of changes in land use could include the impairment of the quality of the natural environment, injury or damage to property, rendering the property unfit for use, and interference with the normal conduct/operation on the property.

Comment LA03-137**Comment**

ATTACHMENT 1

Chapter 11, Land Use and Agricultural Resources, Page 11-19

What happens if land is not protected by the Williamson Act? What is the implication of protection? Does it matter?

Response

For the past 53 years, the Williamson Act has existed as California's primary agricultural land conservation program. It directly restricts land uses on approximately one-third of all privately-owned land in California. Its purpose is to discourage or prevent the conversion of agricultural land and certain open space land to non-agricultural use. Lands protected/enrolled under the Williamson Act cannot be used for uses other than the commercial production of agricultural commodities and compatible uses to which the land is restricted by the contract, local rules, and State law. Farmers and ranchers who volunteer for those restrictions benefit by being guaranteed that the lowest of three alternative property tax calculations apply to their property. Since the cessation of State subventions, local government has borne the full cost of the tax losses provided to participating landowners. By requiring a long period between one party (county or landowner) notifying the other of the intent to "nonrenew" the contract, land is protected and restricted for at least a decade of the nonrenewal period (two decades for Farmland Security Zones [FSZs]). Properties that are not enrolled in the Williamson Act would likely be identified first for conversion to other uses, compared to land enrolled in the Williamson Act and FSZ program. As to whether it matters, almost all of the participating counties have continued their participation in the Act even after the loss of State subvention payments, and the California Farm

Bureau and local Farm Bureaus continue to support the Act as one the most important programs created in State law.

Comment LA03-138

Comment

ATTACHMENT 1

Chapter 11, Land Use and Agricultural Resources, Page 11-29

What is the range of fluctuations in loss acreage?

Response

Table 11-3 shows fluctuations in acreages in Important Farmland in Yolo County. From 2012 to 2014, the lost acreages for Prime Farmland was 0.4 percent, 0.5 percent for Unique Farmland, 0.6 percent for Farmland of Statewide Importance, and 13 percent for Farmland of Local Importance. During this time period, 2.4 percent of Important farmland was lost. Tables 11-4 and 11-5 present the summary of changes in Sutter and Solano counties, respectively.

Comment LA03-139

Comment

ATTACHMENT 1

Chapter 11, Land Use and Agricultural Resources, Page 11-30

EIS/EIR states, “While project implementation could temporarily affect up to seven percent of Yolo County’s Prime Farmland, Unique Farmland, and Farmland of Statewide Importance because of increased periods of inundation, the lands would not be permanently taken out of production although it is possible that farms might shift to alternative crops or experience changes in agricultural yield.” This would be all of the Prime Farmland, Unique Farmland, and Farmland of Statewide Importance in the Bypass given the numbers shown in this chapter (24,700 acres in the bypass and 365,535 acres in Yolo County). Should this read up to 7 percent of the Prime Farmland, Unique Farmland, and Farmland of Statewide Importance in the Bypass?

Response

All of the Prime Farmland, Unique Farmland, and Farmland of Statewide Importance in the bypass accounts nearly 7 percent of the Prime Farmland, Unique Farmland, and Farmland of Statewide Importance in Yolo County. To be conservative, the analysis assumes all of the Prime Farmland, Unique Farmland, and Farmland of Statewide Importance in the bypass could experience periods of increased inundation.

Comment LA03-140**Comment**

ATTACHMENT 1

Chapter 11, Land Use and Agricultural Resources, Page 11-34, Section 11.3.3.6.2

It is not clear if the loss in yield referred to is per unit area or for total project area.

Response

The sentence reads "permanently affected lands would represent a loss in grazing land and a reduction in crop yields where agricultural production would no longer be feasible due to the construction of project structures." Here, the reduction in crop yields represents the losses that would be seen across the project area.

Comment LA03-141**Comment**

ATTACHMENT 1

Chapter 11, Land Use and Agricultural Resources, Page 11-41

Impact AGR-2: EIS/EIR reports, "the additional wet period experienced by most of the lands in the bypass is not anticipated to cause a delay that would result in planting dates beyond June 1 or change FMMP land use classifications. There are still potential yield losses, however, because the proposed date (Mar 15) for the end of inundation flow releases at Fremont Weir could delay planting relative to existing conditions." Without sensitivity analysis we do not know how significant these delays might be. These delays could affect the conclusions and thus alter this analysis and the IMPLAN analysis as well.

Response

The Draft Yolo Bypass Flood Date and Flow Volume Agricultural Impact Analysis analyzed the most likely scenario based on the available information. Initially, multiple end dates were analyzed, and the hydrographs were very similar compared to the alternatives that are currently included in the EIS/EIR. A new analysis was performed for the current alternatives based on that information. Additional text has been added to the chapter to expand on the background, documentation, and methodology used in the analysis. See also Response to Comment LA03-29.

Comment LA03-142**Comment**

ATTACHMENT 1

Chapter 11, Land Use and Agricultural Resources, Page 11-43, Table 11-6

Useful to provide estimated acres of affected areas under each FMMP denomination.

Response

A column has been added to Table 11-6 that lists the estimated acres of affected areas.

Comment LA03-143

Comment

ATTACHMENT 1

Chapter 11, Land Use and Agricultural Resources, Page 11-44

EIS/EIR states, “The Lower Yolo Restoration Project is intended to restore tidal flux to 1,100 acres of existing pasture land. Additionally, EcoRestore Projects in or near the Yolo Bypass, including Agricultural Road Crossing #4, Lisbon Weir Modification Project, and Lower Putah Creek Realignment Project, could affect small areas of agricultural land. These actions have the potential to change land use in these parts of the bypass but would not likely change land use designations.” On what basis can it be stated that land use will change but not land use designation?

Response

It is possible that a land use designation might stay the same while the operational land use changes. For example, a parcel with an agricultural designation could typically be used to produce commercial crops, but the landowner could switch operations to agricultural processing and the agricultural land use designation would remain the same. Text has been edited to indicate that land use could change temporarily, but would not change in the long-term.

Comment LA03-144

Comment

ATTACHMENT 1

Chapter 11, Land Use and Agricultural Resources, Page 11-45

EIS/EIR states “It is also assumed that construction-related impacts to agricultural lands would be temporary and would not result in the conversion of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance to non-agricultural uses or substantial reductions to crop yields. "Why is it realistic to assume these construction-related impacts will be temporary? How long is the lag until it returns to its prior use? Would future crop yields be affected from long delays?

Response

Construction actions are temporary in nature and would occur over a set period of time. After a time, fields would return to its prior use. In contrast, permanent impacts would include actions taken that would change the land and its use for the entirety of the project operations into the future.

Comment LA03-145**Comment**

ATTACHMENT 1

Chapter 12, Geology & Soils, Page 12-13

Impact GEO-1: The analysis identifies a 13 percent increase in annual sedimentation rates and that while sediment removal will need to occur more frequently, it's a less than significant impact. Sediment removal in the floodway has become increasingly more difficult to get permitted and more costly due to mitigation requirements. Any change should be considered significant. The project should include CESA and ESA coverage for all O&M activities, including sediment removal.

Refer to Letter Comment 12-1

Response

See Responses to Comments LA03-32 and LA03-59.

Comment LA03-146**Comment**

ATTACHMENT 1

Chapter 12, Geology & Soils

Impacts on RD 1600 gravity drain: The project as proposed will have an adverse impact on RD 1600 drainage. When the notch has water flowing through it, the backwater in the Tule canal will prevent the gravity drain from draining the District. This will require the pump station to be used more often resulting in increased electrical costs and wear and tear on the pump station requiring more frequent maintenance, repair and rehabilitation. The increase in sedimentation that is associated with the project will also reduce the effectiveness of the gravity drain. The project should include periodic removal of sediment in the Tule Canal to avoid impacting the gravity drain. CESA and ESA coverage should include coverage for this O&M activity.

Response

The removal of agricultural road crossings should help flush out sediment. If higher flows are present, then additional vegetation should not increase. For the O&M activity, please refer to the Master Response 4: Impacts to Landowners and other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment LA03-147

Comment

ATTACHMENT 1

Chapter 13, Recreation

The calculation of a 2% reduction in days available for educational programs and activities is not properly supported because the analysis does not include the days the Wildlife Area will remain closed to drain and dry out. The calculation of a 4.1% reduction in hunting days also is not properly supported for the same reason. The Yolo Basin Foundation estimates the lost education and hunting days are 2-3 times the estimates in the EIS/EIR because of the additional time needed to drain the Wildlife Area that is not included in the analysis. Yolo County supports the Yolo Basin Foundation's suggestion that this analysis should be updated.

Refer to Letter Comment 13-1

Response

See Response to Comment SA01-4.

Comment LA03-148

Comment

ATTACHMENT 1

Chapter 13, Recreation, Page 13-39

Yolo County strongly supports implementation of Mitigation Measure MM-REC-1, particularly the rehabilitation of the Fremont Weir Wildlife Area (FWWA) recreational access parking area. This mitigation measure states that DWR shall, in consultation with CDFW, rehabilitate the existing parking area to provide adequate public parking for long-term access and use of the FWWA. Yolo County requests that these rehabilitation efforts be conducted in coordination with the County to ensure that the rehabilitated parking area adequately accommodates the FWWA's long-term recreational demands.

Response

The mitigation for the existing parking area would only be done if the parking was utilized for construction purposes and resulted in damage. Otherwise, the parking area would remain as currently constructed if no construction-related impacts occur. As such, the document was updated to include the following clarifying phrase "if it was utilized for construction purposes and impacted" to the mitigation.

Comment LA03-149**Comment**

ATTACHMENT 1

Chapter 14, Visual Resources, Page 14-13

Impact VIS-2 concludes that the headwork structures and associated support facilities would alter views into the Fremont Weir Wildlife Area (FWWA), would provide a stark contrast with the surrounding vegetation, and could impede scenic views and vistas for visitors to the FWWA. This impact is identified as significant in the Visual Resources section. Mitigation Measure MM-VIS-1, which is intended to reduce the significance of this adverse visual impact, states that all new structures, including bridges, will be screened to soften the views of the facilities. This mitigation further states that screening could include landscaping with shrubs, ground cover, vegetated berms, and floodplain restoration. However, the headwork structures, including the bridge proposed to be constructed over the new notch in the Fremont Weir, will be substantially elevated above the surrounding ground surface. Therefore, substantial vegetative planting would be required to feasibly screen these facilities from surrounding viewpoints including the planting of tall trees. However, any planting within the Yolo Bypass is likely to increase the vegetative roughness, which will diminish its flood conveyance capacity. As this approach would likely not be acceptable to the U.S. Army Corps of Engineers, the implementation of this mitigation is likely to be infeasible and the visual impact would remain significant and unavoidable. The visual resource impact discussion should be revised to address this deficiency.

Response

The headwork structures, including the bridge to be constructed over the new notch in the Fremont Weir, would not be elevated much higher than the elevation of the existing weir. While screening of these new structures will be utilized to the extent possible, the addition of these new structures would be in context with the artificial structures that already exist in the area.

Comment LA03-150**Comment**

ATTACHMENT 1

Chapter 14, Visual Resources, Page 14-13

Impact VIS-2 addresses the long-term changes in scenic vistas, scenic resources, and existing visual character associated with construction of the facilities within the Yolo Bypass but ignores the visual impacts associated with construction of a large sediment mound outside of the Yolo Bypass. As described on page 15-17 of the Public Services, Utilities, and Power section, the total excavation is expected to range from 265,820 to 3,149,312 cubic yards, depending upon the alternative selected. This material is proposed to be transported off site to a designated spoils area within two miles of the Yolo Bypass. Also, additional long-term sediment removal and disposal would be necessary due to ongoing maintenance requirements. Based on the proposed acreages of the spoil site for the individual alternatives, the height of the spoil piles would range

between 25 and 50 feet over an area as large as 48 acres. This large soil mound would clearly represent a change in the existing visual character of the rural lands within two miles of the bypass. This impact was ignored in the Visual Resources section. This visual impact needs to be evaluated in the EIR/EIS and appropriate mitigation measures need to be provided to minimize the adverse effects on the regions visual character.

Response

Reclamation and DWR would first seek to find neighboring landowners that are interested in using the sediment on their properties (in a manner that is helpful to agricultural operations and would not convert agricultural land). Several public comments indicated an interest in obtaining the sediment. If agreements cannot be made, Reclamation and DWR would obtain land for sediment disposal within two miles of the Bypass. Visual resources are analyzed from within the FWWA and the Agricultural Road Crossing area. These spoil piles would not be visible from beyond the site vicinity due to their distance from the FWWA and Agricultural Road Crossing, and due to screening from vegetation.

Comment LA03-151

Comment

ATTACHMENT 1

Chapter 16, Socioeconomics

Chapter 16 does not clearly state the area of analysis of the impact analysis using IMPLAN. Is it Yolo County and the surrounding counties or just Yolo County? The selection of the counties or areas included in the IMPLAN analysis, affect the multiplier effects. A small area may have more economic leakage hence understating the region-wide multiplier effects. Conversely, a larger area may overstate the region wide multiplier effects.

Letter Comment 16-5

Response

Section 16.3.1.1 discusses the economic region used for the Construction impacts analysis. As discussed in the section, Yolo, Sutter, Solano, and Sacramento counties were used since direct construction labor is expected to come from areas surrounding the bypass and not be limited to Yolo County alone.

Comment LA03-152

Comment

ATTACHMENT 1

Chapter 16, Socioeconomics

The analysis does not provide details on what sectors in IMPLAN are considered quantifying construction impacts. The selection of sectors affected by construction does not have an effect on

the direct impacts on gross revenues (output), but it does on employment and labor income, and the overall indirect and induced effects. There are 8 sectors for construction in the 2014 Yolo IMPLAN database.

Letter Comment 16-5

Response

Construction impacts were analyzed using analysis by parts. As discussed in the impacts discussion, a portion of the direct effects are direct construction jobs but other sectors such as Architectural, engineering, and related services; Environmental and other technical consulting; Insurance agencies, brokerages, and related activities could also result in direct impacts. Though the exact IMPLAN sectors are not mentioned in Chapter 16, this information is summarized in general terms in the impact discussion.

Comment LA03-153

Comment

ATTACHMENT 1

Chapter 16, Socioeconomics

The IMPLAN sectors associated to operation and maintenance are not specified. The selection of the sector may have an effect on the overall multipliers (and estimated benefits of each crop alternatives).

Response

O&M impacts were analyzed under Maintenance and repair of nonresidential structures sector in IMPLAN.

Comment LA03-154

Comment

ATTACHMENT 1

Chapter 16, Socioeconomics

The matching of BPM commodities analyzed with IMPLAN Yolo 2014 agricultural sectors should be clearly stated in the document. Same as for construction, and operation and maintenance of facilities, commodity groups vary in their multipliers which ultimately drive indirect and induced effects.

Response

Agricultural sectors are shown in Table O-3. Construction and O&M are described in Responses to Comments LA03-152 and LA03-153, respectively.

Table O-3. IMPLAN Sectors for each Crop Group

BPM Crop Group	IMPLAN Sector
Safflower	Oilseed Farming
Sunflower	Oilseed Farming
Corn	Grain Farming
Rice	Grain Farming
Wild Rice	Grain Farming
Grain	Grain Farming
Processing Tomatoes	Vegetable and Melon Farming
Vine Seed	Vegetable and Melon Farming
Dry Pasture	All Other Crop Farming
Irrigated Pasture	All Other Crop Farming
Alfalfa	All Other Crop Farming

Comment LA03-155

Comment

ATTACHMENT 1

Chapter 16, Socioeconomics, Page 16-1, 16.3.1.1

IMPLAN description is not provided in this section.

Response

Text in Section 16.3.1.1 has been edited to include a description of IMPLAN.

Comment LA03-156

Comment

ATTACHMENT 1

Chapter 16, Socioeconomics, Page 16-2, Table 16-2

Are dollar values current dollars or real dollars? It is not clear from the presentation.

Response

Costs in Table 16-2 are presented in the year studied dollars value (for example, corn costs are in 2015 dollars).

Comment LA03-157**Comment**

ATTACHMENT 1

Chapter 16, Socioeconomics, Page 16-3, Table 16-3

Table uses 2008 as the base year for determining real dollars. It seems possible to update this and make it easier to put into current context. As noted earlier, dollar base years differ throughout the economic analyses. Consistency across all analyses should make results simpler to evaluate across analyses.

Response

In response to this comment, production costs in Table 16.3 have been updated to include 2016 dollars.

Comment LA03-158**Comment**

ATTACHMENT 1

Chapter 16, Socioeconomics, Page 16-8

“To summarize Guidelines 15131[a] and 15131[a], the economic or social effect of a project may be used to determine the significance of physical changes caused by the project.” Should one of the underlined guidelines be 15358[b]?

Response

Text has been revised "To summarize Guidelines 15131[a] and 15358[b]"

Comment LA03-159**Comment**

ATTACHMENT 1

Chapter 16, Socioeconomics, Page 16-9, 16.3

The title for this section is written as “Environmental Consequences.” Should this be titled “Socioeconomic Consequences” or “Economic Consequences?” The first sentence in this section talks about economic effects.

Response

Text has been changed to "Socioeconomic Consequences."

Comment LA03-160

Comment

ATTACHMENT 1

Chapter 16, Socioeconomics, Page 16-9

Bottom of page states, “.....a 10% design cost estimate...” and “...on site worker estimates...” Is it standard to use a 10% design cost estimate? What were the onsite worker estimates used? How were they obtained?

Response

There are no specific requirements on project design for NEPA/CEQA documents. Typically NEPA/CEQA documents use either 10 percent or 30 percent design estimates. Appendix B, *Constructability and Construction Considerations*, summarizes the construction personnel information for each alternative.

Comment LA03-161

Comment

ATTACHMENT 1

Chapter 16, Socioeconomics, Page 16-10

“... Alternatives 1, 2, 3, 5, and 6 would not affect any land outside the FWWA. Alternative 4 could affect land that is currently used for farming, but these small quantities are not addressed through BPM. Alternative 4 land conversion effects from construction are assessed qualitatively.” Why doesn't BPM evaluate this potential land change? What does it mean to qualitatively assess?

Response

See Response to Comment LA03-135.

Comment LA03-162

Comment

ATTACHMENT 1

Chapter 16, Socioeconomics, Page 16-11

The term conservative assumption is used with regard to assuming all YBP rice and tomatoes come out of production. Why say it is conservative? Why not call it the worst case scenario?

Response

While this condition is conservative, it was not selected to represent the worst-case scenario. Text remains unchanged.

Comment LA03-163

Comment

ATTACHMENT 1

Chapter 16, Socioeconomics, Page 16-12

“Employment is the number of jobs, including...” should there be a 'measured by' in there? Also this appears “...economic effects would be less.” Would it be less severe or fewer?

Response

Text has been revised.

Comment LA03-164

Comment

ATTACHMENT 1

Chapter 16, Socioeconomics, Page 16-12

EIS/EIR states “....because existing conditions for regional economics are not.....” Should this read the regional economy? Why is the term economics used here? There are many occurrences in this chapter where regional economy appears and others where regional economics is used. Are these different ideas?

Response

Text has been revised.

Comment LA03-165

Comment

ATTACHMENT 1

Chapter 16, Socioeconomics, Page 16-12

“This section provides a project-level evaluation of the direct and indirect socioeconomic effects.” Does this also include induced effects?

Response

The section also discusses induced effects. Text has been revised.

Comment LA03-166

Comment

ATTACHMENT 1

Chapter 16, Socioeconomics, Page 16-13

EIS/EIR states, “The duration of these jobs would vary and most would not likely be over the entire construction period.” Does this phenomenon need to be explained? Why is this the case? Is it because different labor does different aspects of the construction?

Response

Different aspects of construction have different personnel requirements as summarized in Appendix B in Tables 2 to 8.

Comment LA03-167

Comment

ATTACHMENT 1

Chapter 16, Socioeconomics, Page 16-14

The EIS/EIR states, “The annual maintenance cost for Alternative 1 would be approximately \$0.5 million annually. These estimates were developed considering a 50-year project life cycle.” Is this a common assumption about the project life cycle? What is the basis for using this age? A shorter lifespan could change the results.

Response

A 50-year project lifecycle is commonly chosen for large civil works projects in accordance with U.S Army Corps of Engineers Regulations ER 1110-2-1150, Engineering and Design for Civil Works Projects. In accordance with these regulations, a 50-year period of analysis was chosen for the RED analysis.

Comment LA03-168

Comment

ATTACHMENT 1

Chapter 16, Socioeconomics, Page 16-15, Table 16-15

The analysis of the regional economic effects summarized in Table 16-15 for Alternative 1 and similar tables for Alternatives 2 and 6 is speculative and legally inadequate.

Letter Comment 11-1; Letter Comment 11-4

Response

See Response to Comment LA03-34.

Comment LA03-169**Comment**

ATTACHMENT 1

Chapter 16, Socioeconomics, Page 16-16

The EIS/EIR states, “A potential increase in groundwater levels due to increased inundation has the potential to cause shallow groundwater levels to rise. Shallower groundwater levels have the potential to increase saturation near the root zones of crops, thereby reducing crop yields. Different types of crops have different root zone depths, which result in different potential for effects from shallow groundwater. The crops grown around the bypass are primarily deciduous fruits and nuts (walnuts or pistachios); field crops (alfalfa, corn, sudan grass, or safflower); truck and berry crops (tomatoes); or grain crops (rice).” Where does this information come from? It should be easy to find references for this content. Having that information make these statements more credible.

Response

Reference has been added regarding the source of crop data discussed in Chapter 16.

Comment LA03-170**Comment**

ATTACHMENT 1

Chapter 16, Socioeconomics, Page 16-17

The EIS/EIR states, “Reduced crop yields could result in crop shifting but would not result in permanent cropland conversions. Additionally, the Elkhorn area and the west side of the bypass (near I-80) only accounts for 1.5 to 3 percent of total agriculture in Yolo County.” Is this a result from the BPM? Without supporting evidence it takes away from the weight of the result.

Letter Comment 11-3

Response

This assessment is not based on results from the BPM model. As discussed in Section 16.3.1.2.2 the assessment is a qualitative analysis based on the review of existing groundwater level data in the Elkhorn area.

Comment LA03-171

Comment

ATTACHMENT 1

Chapter 16, Socioeconomics, Page 16-17

The EIS/EIR states, “These increases in duration and quantity of pumping would increase groundwater pumping costs to Reclamation District 1600.” Would these increased pumping costs be large enough to change the results?

Letter Comment 11-2

Response

See Master Response 4: Impacts to Landowners and other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment LA03-172

Comment

ATTACHMENT 1

Chapter 16, Socioeconomics, Page 16-19, Table 16-17

Table shows the direct effect of employment is 347 jobs. The text above reports a direct effect of 321 jobs. This appears to be an inconsistency.

Response

Text has been revised.

Comment LA03-173

Comment

ATTACHMENT 1

Chapter 16, Socioeconomics, Page 16-32

EIS/EIR states, “Alternative 5 would extend periods of inundation and could cause increased invasive growth on pasture.” Are the costs to control this invasive growth on pastures enough to change the conclusions about this alternative?

Response

See Master Response 4: Impacts to Landowners and other Users of Land for response to issues regarding compensation to landowners and users. To the extent appropriate, discussions related

to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment LA03-174

Comment

ATTACHMENT 1

Chapter 17, Traffic, Page 17-10

Impact TRAN-2 states that Alternative 1 would require a total of 463 three-axle dump truck trips per day over six weeks of the 28-week construction period during the project's riprap and rock slope protection (RSP) installation portion. These trucks would access the site by way of County Roads 117 and 16 (east). This impact further states that sediments generated during construction would be disposed of within two miles of the project area. However, this impact discussion does not acknowledge the substantial number of truck trips that would be generated by the sediment removal requirements. As identified in the Public Services, Utilities, and Power Chapter, the amount of sediment removal required for the alternatives would vary from 265,820 cubic yards for Alternative 1 to 3,149,312 cubic yards for Alternative 5. Assuming haul trucks with an average capacity of 16 cubic yards, the estimated additional truck trips generated during the 28-week construction period for the six alternatives would range from 33,227 to 393,664. All of these truck trips would occur on the local roads in the project vicinity, which would represent a substantial increase in traffic in relation to the existing traffic load and capacity. In addition, the site's long-term sediment removal requirements would extend the project's localized traffic impacts indefinitely into the future. As defined in the thresholds of significance on page 17-8, this would represent a significant impact. The Final EIR/EIS should fully describe this significant traffic impact and identify appropriate mitigation measures to minimize the adverse effects on local residences.

Letter Comment 17-1

Response

See Response to Comment LA03-40.

Comment LA03-175

Comment

ATTACHMENT 1

Chapter 17, Traffic, Page 17-12

Impact TRAN-4 states that traffic associated with project-related maintenance activities following construction, such as maintenance vehicle use for sediment removal, is expected to be similar to existing conditions and would not substantially alter traffic conditions in the areas. This conclusion ignores the additional truck traffic associated with long-term sediment removal on local roads. According to the Draft EIR/EIS (page 15-9), the project alternatives would require the removal and disposal of an additional 37,800 cubic yards of accumulated sediment

every five years when compared to existing conditions. Although a disposal site has not yet been selected for this sediment, it seems certain that residences located along the county roads in the project vicinity would be adversely affected by this increase in truck traffic. The Final EIR/EIS should discuss these long-term localized traffic impacts and identify mitigation measures to minimize their effects on local residents.

Letter Comment 17-2

Response

See Response to Comment LA03-40.

Comment LA03-176

Comment

ATTACHMENT 1

Chapter 18, Air Quality, Page 18-42

Mitigation Measures MM-AQ-1 through MM-AQ-4 are focused on reducing construction emissions and it is unclear whether these same measures would be consistently implemented during annual maintenance activities. Because the annual maintenance activities would require substantial vegetation removal, sediment excavation, and offsite sediment transport and disposal, it is critical that these mitigation measures be applicable to these long-term project activities. The air quality discussion should clarify the applicability of these mitigation measures to the long-term maintenance activities and address whether these activities were considered in quantifying the emissions identified in the operational emission tables for the project alternatives.

Response

The mitigation measures have been reworded to state that they are applicable to both construction and maintenance activities, as appropriate. The CEQA conclusions written for each impact statement indicate that the mitigation measures apply to both construction and maintenance activities; therefore, no changes were made to these conclusions. The text shows tables for both mitigated and unmitigated operational (maintenance) emissions; therefore, no revisions to the impact analysis are warranted.

Comment LA03-177

Comment

ATTACHMENT 1

Chapter 18, Air Quality, Page 18-42

Bullets 2 and 9 of Mitigation Measure MM-AQ-4 reference the Department of Public Works. Does this reference imply that County Public Works Departments will be expected to monitor the construction mitigation measures? If so, coordination with these departments will be necessary prior to project construction to define their involvement.

Response

The language in the mitigation measures was taken verbatim from Feather River AQMD's Indirect Source Review Guidelines (2010). The mitigation measure was not intended to suggest that the Department of Public Works would be required to complete monitoring activities. However, the departments described in the mitigation measure will be consulted prior to the commencement of construction activities to develop a fugitive dust control plan that adequately addresses the mitigation measures.

Comment LA03-178**Comment**

ATTACHMENT 1

Chapter 18, Air Quality, Page 18-42

The use of the word "should" in Mitigation Measure MM-AQ-4 for bullets 4 and 7 gives the impression these measures are recommendations rather than requirements. This word should be changed to "shall" to ensure these measures are enforceable during project construction activities. Also, the applicability of the construction mitigation measures to the offsite sediment disposal site needs to be clearly articulated, particularly related to cover and stabilization requirements to ensure that significant wind-blown particulate emissions are not generated during and following sediment placement.

Response

The language used in the mitigation measures was taken verbatim from Feather River AQMD's Indirect Source Review Guidelines (2010). However, the language in the mitigation measures has been updated to specify "shall" instead of "should." The document has been updated to clarify that the fugitive dust control measures are also applicable to the offsite sediment disposal area.

Comment LA03-179**Comment**

ATTACHMENT 1

Chapter 18, Air Quality, Page 18-45

Impact AQ-3 states that to determine if sensitive receptors are exposed to substantial pollutant concentrations, potential health risks must be assessed. It further states that diesel particulate matter is listed as a Toxic Air Contaminant in California and would be subject to a human health risk assessment under CEQA. However, without actually conducting a health risk assessment, the impact discussion concludes that the exposure of residents to toxic diesel emissions would be less than significant due to their distance from the construction activities. This conclusion ignores the significant number of heavy trucks that will pass directly in front of multiple rural residences when accessing the site. If the residences are located along the sediment disposal route, they will further be exposed to toxic diesel emissions throughout the project's life. As

referenced in the impact discussion, the preparation of a health risk assessment is necessary to appropriately quantify the potentially significant health risks for residents located along the project's proposed haul routes, consistent with CEQA. The results of such an assessment should be circulated for public review and comment prior to finalizing the environmental document.

Letter Comment 18-1

Response

See Response to Comment LA03-44.

Comment LA03-180

Comment

ATTACHMENT 1

Chapter 18, Air Quality, Page 18-57

Mitigation Measure MM-AQ-5 includes staggering maintenance activities so that total daily emissions are less than the significance thresholds. However, no detail is provided regarding how this will be accomplished or even what activities need to be staggered. Without more information regarding the mechanics of this mitigation measure, it is difficult to conclude that it would actually reduce daily emissions below the significance thresholds. Also, if maintenance activities will be staggered, presumably they will occur over a longer timeframe. More information needs to be provided regarding the expected duration of annual maintenance activities and the effects of this mitigation measure on these durations.

Response

As shown in Table 18-30, maintenance activities are significant only if each activity is added together; if any one activity is moved to a different day, then emissions would no longer be significant. However, the section has been updated to clarify the likely maintenance schedule. To clarify, staggering the maintenance activities would not result in a longer timeframe because CEQA significance is based on peak day, not annual, emissions for maintenance activities. The emission calculations have been updated, but the mitigation measure was retained to prevent all maintenance activities from occurring simultaneously.

Comment LA03-181

Comment

ATTACHMENT 1

Chapter 18, Air Quality, Page 18-58

Table 18-30 identifies mitigated maximum daily operational emissions for Alternative 3 that exceed the significance threshold (i.e., 32 lbs/day vs. 25 lbs/day threshold) but concludes that this emission level would be less than significant. Footnote #2 references Mitigation Measure MM-AQ-5 as justification for this conclusion but this table identifies emission levels with the

identified mitigation measures already implemented. Therefore, the NO_x emissions associated with Alternative 3 operations would presumably remain significant and unavoidable. The CEQA conclusion should be revised to accurately reflect the significance of this impact. This same issue occurs in Table 18-36 for Alternative 4 and Table 18-48 for Alternative 6.

Response

The results in Draft EIS/EIR Table 18-30 show a peak daily value that assumed all maintenance activities would occur simultaneously on the same day, as the most conservative assumption for the analysis. The footnote was intended to show that if any one maintenance activity was moved to a different day (based on the mathematics; the actual activity does not matter), then emissions would be less than 25 pounds per day. The likely maintenance schedule has been developed and used for the Final EIS/EIR. The emission calculations and impact analysis were updated to demonstrate the probable maintenance schedule, rather than the most conservative, worst-case scenario as currently shown in Draft EIS/EIR Chapter 18, Air Quality and Greenhouse Gases. No changes to the significance determination would occur due to this change (i.e., emissions would not be significant and unavoidable because the Draft EIS/EIR analysis correctly showed mitigated emissions as less than significant).

Comment LA03-182

Comment

ATTACHMENT 1

Chapter 18, Air Quality, Page 18-62

The CEQA conclusion for Impact AQ-5 states that because NO_x emissions associated with Alternative 4 would exceed the general conformity de minimus threshold, this impact would be significant. The CEQA conclusion further states that the general conformity applicability evaluation already assumes mitigation is incorporated. However, if mitigation measures are already assumed to be included and the projected emission levels still remain above the de minimus threshold, then this impact would correctly be identified as significant and unavoidable. By not correctly identifying this impact as significant and unavoidable in the Draft EIR/EIS, the document preparers have deprived the public of the opportunity to fully comprehend the adverse impacts of project implementation.

Response

The Draft EIS/EIR correctly identified Impact AQ-5 as significant for Alternative 4 in Table 18-37 (General Conformity Applicability Evaluation for Alternative 4) due to emissions above the threshold, and as significant and unavoidable in Table 18-51 (Summary of Impacts and Mitigation Measures – Air Quality and GHG). While there was a typographical error in the CEQA conclusion on page 18-67, because it only states that emissions would be “significant,” the text has been updated to clarify that emissions would be “significant and unavoidable,” notwithstanding that the data and analysis supporting that conclusion were already disclosed in the Draft EIS/EIR.

Comment LA03-183

Comment

ATTACHMENT 1

Chapter 18, Air Quality, Page 18-74

The CEQA conclusion for Impact AQ-5 states that because NOx emissions associated with Alternative 5 would not exceed the general conformity de minimus threshold, this impact would be less than significant. However, as indicated in Table 18-43 on page 18-73, the construction emissions generated by Alternative 5 would exceed the NOx de minimus threshold by 4.4 tons per year (i.e., construction emissions of 29.4 tpy with a threshold of 25 tpy). This represents a significant impact that has not been disclosed to the public. In addition, as described for Alternative 4 in the page 18-62 response above, this impact would correctly be identified as significant and unavoidable. Not identifying the impact as such violates CEQA by depriving the public of the opportunity to fully comprehend the adverse impacts of project implementation.

Response

Table 18-43 contained a typographical error and the NOx emissions were incorrectly identified as less than significant. However, the total emissions in both Table 18-43 and in Appendix L1 (formerly Appendix K1) clearly show that NOx emissions would exceed the significance threshold; therefore, the public was not deprived of the opportunity to fully comprehend the adverse impacts of project implementation. The text and supporting tables (Table 18-43 and Table 18-51) have been updated to correct the typographical errors and to confirm the significance conclusion reflected by the data presented in Tables 18-43 and 18-51 of the Draft EIS/EIR. Because the emissions analysis identifies emissions as being greater than the significance threshold of 25 tons per year, the adverse air quality impacts of project implementation have already been disclosed in the Draft EIS/EIR.

Comment LA03-184

Comment

ATTACHMENT 1

Chapter 18, Air Quality, Page 18-76

For the Tule Canal Floodplain Improvements, the CEQA conclusion for Impact AQ-5 states that construction-related emissions are expected to be equivalent to the channel improvement emissions for Alternative 5 and that they are not expected to exceed the general conformity de minimus thresholds. However, as discussed in the response to this issue for Alternative 5 on page 18-74 above, the CEQA conclusion incorrectly identifies the impact as less than significant. According to Table 18-43 on page 18-73, Alternative 5 is projected to generate 29.4 tons per year of NOx emissions, which is in excess of the 25 tpy de minimus threshold. This again represents a significant and unavoidable impact that has not been disclosed in the Draft EIR/EIS.

Response

Due to a typographical error, the text of Impact AQ-5 for Alternative 5 incorrectly stated that the impact would be less than significant. The discussion for both Alternative 5 and the Tule Canal Floodplain Improvements have been updated to correctly state that impacts would be significant. However, because all supporting documentation (i.e., tables and appendix) clearly indicated that emissions values would exceed the significance threshold, the Draft EIS/EIR has already disclosed this adverse impact.

Comment LA03-185**Comment**

ATTACHMENT 1

Chapter 20, Noise, Page 20-11

The Methods for Analysis section states that the focus of the noise analysis is on potential temporary noise impacts during construction. This section further states that long-term noise impacts are not anticipated from operation and maintenance of new facilities but then acknowledges that short-term and intermittent noise impacts would occur from maintenance activities, such as from sediment removal. No information is included in this section regarding the duration of these sediment removal activities even though the analysis acknowledges that more peak truck trips would be generated during maintenance activities than during project construction. Because more daily truck trips are expected from long-term sediment removal maintenance activities than from project construction, the project would clearly result in a significant long-term noise impact. The noise discussion needs to be modified to reflect this reality.

Response

The noise section was updated to refine and disclose the probable maintenance schedule and the noise calculations were updated accordingly. Additionally, the peak number of trips expected to occur on individual road segments was clarified. As written in the Draft EIS/EIR, the peak number of trips associated with maintenance activities describe a scenario where every single maintenance activity would occur on the same day over the entire study area, resulting in trip numbers that are artificially high as a most conservative assumption. The peak number of truck trips are not all occurring on the same county road, but would be dispersed over a large geographic area. The noise analysis was updated to evaluate noise levels on the individual road segments, rather than over the entire study area. No changes to the significance determination were made.

Comment LA03-186**Comment**

ATTACHMENT 1

Chapter 20, Noise, Page 20-12

According to the last sentence of the first paragraph on page 20-12, the analysis of noise generated from construction-related traffic was compared against the 2015 annual average daily traffic volumes published by Caltrans. However, in the traffic noise tables included in Appendix L, traffic volumes were only provided for Interstate 5. No existing traffic volume data was used to calculate the noise levels along the County roads. The noise section should clarify how noise levels associated with haul vehicle traffic were calculated when no information is provided regarding the existing traffic volumes on these roads.

Response

See Response to Comment LA03-47.

Comment LA03-187

Comment

ATTACHMENT 1

Chapter 20, Noise, Page 20-12

This first paragraph states that traffic levels would need to increase by at least nine times to double noise levels. The analysis on page 20-17 then states that county roads are expected to experience enough of a traffic increase to double the traffic noise levels. In effect, this analysis is acknowledging that traffic levels on county roads will increase by at least nine times, without specifically stating so and without providing any information regarding existing traffic volumes on these roads. Because truck traffic associated with long-term maintenance activities are actually expected to generate more daily traffic than associated with construction activities, this nine-time increase in traffic on local county roads would occur over the entire life of the project, which could span the lifetimes of the residents along these rural roads. More aggressive noise mitigation measures clearly need to be included in the Final EIR/EIS to address this significant long-term noise impact on residences located adjacent to the identified haul routes.

Response

See Response to Comment LA03-45.

Comment LA03-188

Comment

ATTACHMENT 1

Chapter 20, Noise, Page 20-15

The discussion concludes that no long-term project operations would occur under Alternative 1 that would generate excessive vibrations or groundborne noise. However, this statement again ignores road vibration impacts associated with long-term operations and maintenance, particularly for sediment removal. The discussion in the first full paragraph on page 20-18 states that there may be up to 112 daily worker trips and 801 haul truck trips associated with

Alternative 1's long-term maintenance activities. Project construction is projected to generate only 668 daily truck trips, or 133 less than anticipated during long-term sediment removal activities. The other alternatives identify even higher levels of long-term maintenance vehicle trips including 1,719 daily haul trips and 178 daily construction worker trips for Alternative 4. It is unclear how the noise and vibration impacts generated by the construction haul truck traffic at local residences along county roads can be identified as significant due to project construction while concluding that there would be no long-term noise or vibration impacts associated with project implementation. Impact NOI-3 on page 20-17 further states that maintenance activities, including road repaving, debris and vegetation removal, sediment removal, channel repairs, and other basic upkeep, would occur periodically throughout the year and that these activities are not anticipated to have a significant effect on ambient noise levels. This statement is again contradicted by the fact that more daily maintenance truck trips would be generated than during peak construction periods. No information is provided regarding the duration of these maintenance activities, other than to state that they would occur periodically throughout the year. The noise section needs to clearly address these deficiencies in the analysis.

Response

See Response to Comment LA03-46.

Comment LA03-189

Comment

ATTACHMENT 1

Chapter 20, Noise, Page 20-16

Mitigation Measure MM-NOI-1 includes noise reduction measures that are intended to offset the significant vibrations generated at residences from loaded haul trucks along the haul routes. However, the only measure included in this mitigation list that would actually reduce haul vehicle noise levels for residences includes limits on the number of passby trips per hour and on vehicle speeds. No information is included regarding these limits. Alternative 4 identifies a total of 1,719 haul trips per day associated with long-term maintenance activities, which represents approximately one truck every 20 seconds over a 10-hour day. This calculation does not even include the 178 daily worker trips necessary for the maintenance activities. Without knowing the limits on passby trips that would be required by this mitigation measure, it is not possible to determine whether it would actually have any beneficial effect on noise levels at the residences. The noise section should specifically quantify the limitations on passby trips needed to ensure the hourly average noise level is maintained below 60 dBA along all affected haul routes. In addition, the duration of the annual maintenance activities should be specifically defined. It is unacceptable to state that periodically there will be between 801 and 1,719 daily heavy construction vehicles and between 112 and 178 daily construction worker trips (depending upon which alternative is selected) travelling on rural county roads adjacent to existing residences without specifying when or for how long these trips will occur. The noise section needs to be revised to include this information.

Response

The noise analysis was updated to clarify the road segments on which construction-related trips would occur. As written in the Draft EIS/EIR, the analysis summarized all trips that could occur simultaneously over the entire study area. Therefore, no single location will experience 1,719 haul trips or 178 worker trips per day because these trips would be dispersed over a large geographic area. The revisions to the Chapter 20, Noise, include new figures that clarify the haul routes and the number of additional trips that would occur on each road segment. The same revisions were completed to clarify how trips would be dispersed for maintenance activities. No additional mitigation measures are required.

Comment LA03-190

Comment

ATTACHMENT 1

Chapter 20, Noise, Page 20-16

Mitigation Measure MM-NOI-1 states that the identified noise reduction measures are intended to offset the significant vibrations generated at residences from loaded haul trucks along the haul routes. This measure specifically identifies the construction of sound attenuation (i.e., stationary barriers placed between the source(s) of construction noise and the noise- sensitive receptors) to minimize noise levels. Because the noise at the residences is caused by haul truck trips, this mitigation measure seems to suggest that sound attenuation barriers will be installed between the residences and the haul routes. However, no information is included regarding the feasibility of constructing these barriers or their effectiveness. This noise section text should clarify how noise attenuation barriers will actually reduce the haul vehicle noise levels at residences adjacent to the haul routes and how these barriers will be constructed and maintained over the long-term so that they effectively reduce noise levels associated with long-term maintenance truck traffic. Alternative noise attenuation options should also be included in Mitigation Measure MM-NOI-1 for home owners who do not want noise attenuation barriers adjacent to their residences. These options could include upgrading the building materials for the residences to reduce interior noise levels (e.g., adding wall insulation, installing double pane windows, etc.).

Response

The noise analysis was updated to clarify and refine the number of trucks that would be expected to occur on individual road segments. As written in the Draft EIS/EIR, the peak number of truck and worker commute trucks occur over a large geographic area and no single area will experience the peak number of trips. No additional mitigation measures are necessary.

Comment LA03-191

Comment

ATTACHMENT 1

Chapter 20, Noise, Page 20-17

Analysis states that county roads are expected to experience enough of a traffic increase to double the traffic noise levels. In effect, the analysis acknowledges that traffic levels on county roads will increase by at least nine times, without specifically stating it and without providing any information regarding existing traffic volumes on these roads. Since truck traffic associated with long-term maintenance activities are actually expected to generate more daily traffic than construction activities, this nine-time increase in traffic on local county roads would occur over the entire life of the project, which could span the lifetimes of the residents along these rural roads. More aggressive noise mitigation measures clearly need to be included in the EIS/EIR to address this significant long-term noise impact on residences located adjacent to the identified haul routes, including installation of double-paned windows, planting of trees to reduce noise, and potentially hay walls to provide a sound barrier.

Letter Comment 20-1

Response

See Response to Comment LA03-45.

Comment LA03-192

Comment

ATTACHMENT 1

Chapter 22, Environmental Justice, Page 22-15

The analysis under Impact EJ-1 states that minority populations were identified in Census Tracts 101.02, 112.06 and 114, and that these tracts were considered minority-affected areas. The analysis further states that the project would result in very small and localized noise impacts. Because the project is specifically located within Tract 101.02, these noise impacts would affect residents within this tract. However, the analysis states that sensitive receptors are not known to be in a minority area and that adverse and disproportionately high noise impacts would not occur to minority populations surrounding the project area. This conclusion directly contradicts the fact that the project is acknowledged to be located within minority-affected areas. The environmental justice section should be revised to acknowledge the project's direct effect on minority-affected areas.

Letter Comment 22-1

Response

As described in Chapter 20, *Noise*, noise impacts will be very small and localized. These impacts will not affect the entire communities of Census Tracts 101.02 and 112.06, and, therefore, will not adversely and disproportionately affect minority areas. No change to the analysis was made.

Comment LA03-193

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix

Inundation can also provide soil moisture and decrease the need for irrigation to irrigation requirements. The BPM is a fixed proportions model, which might not be able to capture this condition. Whether this has an effect on the yields from the other end (deficit irrigation) or moves water needs with respect to the base amounts could alter the conclusions and should be addressed.

Response

See Response to Comment LA03-49.

Comment LA03-194

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix

The BPM uses data from 1997 to 2012 to evaluate the different alternatives for improving salmonid passage and rearing habitat. Cropping patterns, prices, yields during these years may not be representative of current or future conditions. Moreover, the appendix describing the BPM states that the data for years 2005 - 2009 are used to calibrate the model. Can more current data or even the data from 1997 to 2012 be used to calibrate the model?

Response

The BPM (economic analysis in general) requires consistent, spatially explicit crop land use. Data used (2005 - 2009) reflects the best information available and has been validated by Yolo County in an earlier study (Yolo County 2013). In addition, the economic analysis identifies the incremental change attributed to the project, and as such a change in the baseline calibration acreage will apply to both with- and without-project alternatives.

Comment LA03-195

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix

There is no sensitivity analysis to get a sense of consequences or the robustness of results for given parameter value uncertainty. Results are presented over time but do not consider

cumulative effects through time. With a fuller range of values and assumptions, the results would more clearly reflect the range of possibilities rather than relying on a single average outcome.

Letter Comment J1-3

Response

See Response to Comment LA03-29.

Comment LA03-196

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix

Alternatives 2 and 3 are not mentioned. Is this because they are virtually the same projects as Alternative 1 but with slightly different notch location? Should this be mentioned?

Response

The text has been revised to add that Alternatives 1, 2, and 3 are designed with the same flow through the gated notch, so the hydraulic model output of inundation footprint used in the BPM would be the same for all three alternatives.

Comment LA03-197

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix

The discussion on fallowed land is confusing. Statements are made about this land being held constant. Then later we read about changes in fallowed land when the impacts for each alternative are discussed. Further, the justification for holding fallowed land constant could use more justification. Why avoid calibrating to the fallowed acreage too? Would it help justify if there were further description of relevance of idle land with respect to the rest of agricultural area in the bypass?

Response

Every normal agricultural rotation includes fallow land. In the BPM base year calibration, fallow land is the residual between cropped land and total potential crop land resources in any given year. Given that there is no direct economic revenue from fallowed land, it cannot be formally calibrated. The additional fallowed land that results under the with-project scenarios must be treated separately to correctly estimate the total economic impact, as it is described in the BPM report, Appendix K1 (formerly Appendix J1).

Comment LA03-198

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix

It is not always clear what data come from what sources and how data are combined.

Response

Appendix K1 (formerly Appendix J1) includes citations for all key production data in the data tables. Full reference information is included in Section 8.0 of Appendix K1.

Comment LA03-199

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix

Appendix table and figure numbering starts from 1 with each new appendix, making it difficult to list. Appendices also do not appear in Table of Content; their tables and figures are not in the list of tables or figures either.

Response

Most long appendices include their own table of contents at the beginning of the appendix. A table of contents has been added to Appendix K1 (formerly Appendix J1). Due to the number of appendices in the EIS/EIR, it is not feasible to consecutively number tables and figures across the appendices.

Comment LA03-200

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix, Page J1-1

Elaborate on consistency of inputs between BPM and the P&G, and which version of these (e.g. 1983?). It would aid the reader if there were details on what inputs to the model are. Also providing description of P&G and why these are relevant in the context of the economic assessment of impacts to agriculture would add clarity to this discussion.

Response

There is only one model used in the analysis, the BPM. The P&G are sets of federal guidelines for analysis of water resource projects. Section 4.2 of the BPM Technical Appendix describes the adjustments to the BPM model outputs to ensure consistency with P&G.

Comment LA03-201**Comment**

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix, Page J1-2

DAYCENT is a biophysical model not TUFLOW, which is hydrodynamic.

Response

This has been clarified in the text.

Comment LA03-202**Comment**

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix, Page J1-3

On model mechanics provide a description of what the various years in datasets are (e.g. land use, versus cooperative extension budgets, and historical hydrologic dataset).

Response

Section 3.0 of the BPM Technical Appendix describes data used in the analysis, including years.

Comment LA03-203**Comment**

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix, Page J1-3

Appendix states, “This is a rigid production technology specification that does not allow for intensive margin adjustments (e.g., input substitution) by farmers. This specification was chosen because it does not allow for input substitution and economic impacts estimated using the BPM are conservative (more significant). Parameters are calculated using a combination of prior information and the PMP method.” In the second sentence input substitution is redundant. Furthermore, to see that the estimated impacts are conservative (more significant) is hard to interpret. Would it be useful to report how this assumption overestimates the impacts because they do not allow for input substitution?

Response

The second sentence on input substitution is not redundant; it has a specific economic meaning and is included to clearly describe what was done in the analysis. It is self-evident that the rigid production technology used in the analysis that does not allow farmers to costlessly adjust to changing conditions results in higher costs, and is thus a conservative assumption. It would not be useful to speculate on the degree of overestimation of project impacts from this technology specification. A conservative approach was adopted and applied throughout the analysis.

Comment LA03-204

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix, Page J1-5

If the time scale of the gross revenues is daily by crop and inundation region, it is confusing to see that the cost is not also daily. Is there a reason costs are not also on a daily basis?

Response

The expected revenues vary daily with the expected yield. Costs do not change daily as most costs are incurred before or during planting, or at harvest. Once the crop is planted the farmer incurs the cost.

Comment LA03-205

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix, Page J1-6

"The BPM has important interactions with the hydrodynamic analysis. In particular, the TUFLOW model provides last day wet information for each field to the BPM" This is inconsistent with page J1-2 which says TFLOW is biophysical.

Response

See Response to Comment LA03-201.

Comment LA03-206

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix, Page J1-6

“It is noteworthy in some years farmers are able to prep and plant fields in a shorter timeframe.” What are the implications from this statement? Would we expect that the results then overestimate the impacts of the alternatives? Knowing this would be helpful to the reader in understanding the implications of the assumptions. It would also alleviate the need to explain why it was not evaluated in a sensitivity analysis.

Response

The implications are that the study may overestimate the impacts for some farmers, and this is noted in Appendix K1 (formerly Appendix J1). Conservative assumptions are applied throughout the analysis, and stated throughout Appendix K1.

Comment LA03-207

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix, Page J1-8

“In most years the Yolo Bypass includes a significant amount of fallow land. As discussed previously, including the fallow land footprint as potential irrigable acreage could incorrectly understate the economic impacts of the Project by allowing irrigated acreage to switch these areas. This BPM does not allow for this crop switching to occur by excluding these fallow fields from the potential irrigated footprint.” Later, when reporting results, we read that the number of fallowed acreages changes when alternatives are simulated. This apparent inconsistency needs clarification.

Response

Normal rotational fallowing is excluded from the economic impacts. Fallowing as a result of the project alternatives is a central economic output estimated by the BPM. The former is described in Section 2.3 of Appendix K1 (formerly Appendix J1) and the latter is described in Section 5 of Appendix K1.

Comment LA03-208

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix, Page J1-9

It is important to note that prices and yields vary over time and by crop. The economic impacts are defined as the incremental change from the baseline (ExCon/NAA) and these underlying prices yields are, by definition, the same across all alternatives.” Is there a typographical error in the underlined passage?

Response

The text has been clarified to read "underlying prices and yields."

Comment LA03-209

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix, Page J1-19, Table 4

Table reports results in 2009 dollars. Elsewhere we see 2016 and 2012 dollars. For clarity, one base year should be considered.

Response

Table 4 shows data used and is reported as stated, in nominal 2009 dollars. When economic impact results from the BPM are reported they are all in 2016 constant dollars. This is because 2016 is the BPM base year, but data and budgets come from different years (nominal dollars) and are converted to 2016 (real dollars) in the model.

Comment LA03-210

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix, Page J1-14

"Each UCCE budget uses interest rates for capital recovery and interest on operating capital specific to the year of the study. These range from 4 percent to over 8 percent, and as such, require adjustment to a common base year interest rate. A common rate of 6 percent is used for all data." How was a 6 percent interest rate determined? It is not clear that changing this parameter would change the results or conclusions but clarity of parameter determination is warranted. Sensitivity analysis may clarify too.

Response

The rate of 6 percent is based on professional judgement of current farm credit rates. A change of 1 or 2 percent would not make a difference in the conclusions of the analysis and would not show appreciable results in a sensitivity analysis.

Comment LA03-211

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix, Page J1-25

“1. The P&Gs requires that the federal discount rate be used for all interest and capital recovery calculations. The current federal discount rate is 3.125 percent. A post-processing adjustment is applied to cost data components to adjust the interest rate to 3.125 percent.” Is this consistent with the 6 percent interest rate used in the pre-processing adjustments mentioned earlier on this page and on page J1-14? Does it matter if these rates are real or nominal?

Response

This adjustment of the interest rate to 3.125 percent from the 6 percent rate used in the non-federal analysis is required for NED analysis under the P&G. All interest rates are in real terms.

Comment LA03-212

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix, Page J1-25

“2. Machinery capital recovery costs are removed from the NED analysis under all alternatives. Additional land out of production would be quite small ...” Would it be more clear if the reader were told the underlined passage follows from the analysis?

Response

Machinery capital recovery costs are a small share of production costs and excluded from the analysis for consistency with federal guidelines, as described in Section 4.2 of Appendix K1 (formerly Appendix J1).

Comment LA03-213

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix, Page J1-25

Post adjustment 4 needs to specify an interest rate. The source for post adjustment 5 should be noted. For post adjustment 6, would higher rates be worth considering? What is the basis for considering the lower bound? What are the implications?

Response

Point 4 in Section 4.2 of Appendix K1 (formerly Appendix J1), "...adjusted to consistent interest rate" should read "adjusted to a consistent rate of 3.125 percent." This is clear under point 1, in the same section. Regarding point 6, the analysis applies the recommended 6 percent of variable cost as a management charge.

Comment LA03-214

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix, Page J1-26

“An average of 106 acres is fallowed annually as a result of the Project, at an average annual fallow land maintenance cost of \$5,708. In addition to fallowing, the Project may cause yield losses in some years as farmers are forced to delay planting until fields are dry. Crop revenue losses resulting from yield losses and fallowing average \$173,903 per year under Alternative 4.” A discussion and quantification of the yield-related monetary losses would be beneficial for the report for each of the alternatives. It is not clear what the base year is for the dollar amounts.

Response

Table 6 in Section 5.0 of Appendix K1 (formerly Appendix J1) shows a breakdown of fallowing and net income losses separately. All results are presented in 2016 dollars, as stated throughout Appendix K1.

Comment LA03-215

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix, Page J1-27, Table 7

The base NED farm income should be defined.

Response

The economic impact of each project alternative is shown as the incremental change caused by the alternative. Adding the base income would complicate the table without adding any information.

Comment LA03-216

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix, Page J1-29, Table 8

Presenting fractions of jobs lost ignores the variability in economic conditions. With sensitivity analysis the EIS/EIR and a range of job losses would provide more accurate information. Should this also be defined as Socioeconomic Impacts given the chapter is quantifying socioeconomic impacts?

Response

Given the small average employment impact of Alternative 1 shown in Table 8 (0.6 jobs per annum), the range of job losses by year will also be very small.

Comment LA03-217**Comment**

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix

Statements that are noteworthy should be followed up with an explanation for why and what the takeaway message is.

Response

Every attempt has been made to clearly describe the economic analysis.

Comment LA03-218**Comment**

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix, Page J1-29

"Table 6 summarizes the total economic impact of Alternative 1." It appears as though the underlined table number should be an 8.

Response

The text has been corrected to refer to Table 8.

Comment LA03-219**Comment**

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix, Page J1-31

"This includes 2005 and 2006. The most significant fallowing occurs in 2010, when Alternative 1 causes an increase in wetted area during the edge of the standard planting window. It is noteworthy that significant Yolo Bypass fallowing occurs in wet years such as 2005 and 2006." The underlined alternative should probably be numbered as alternative 4. Also, clarity on noteworthiness is warranted.

Response

The text has been corrected to refer to Alternative 4. See Response to Comment LA03-217.

Comment LA03-220

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix, Page J1-31

“A change in Yolo Bypass farming activity may have multiplier effects on ancillary industries as growers purchase fewer inputs and there are fewer farm jobs available.” An inference about why this is relevant is warranted.

Response

This statement is in the context of describing the total economic impact of the project, which precedes Table 10, where the total economic impact is shown.

Comment LA03-221

Comment

ATTACHMENT 1

Appendix J1, Bypass Production Model Technical Appendix

For completeness, provide information on the IMPLAN database employed and the methodology or its caveats in avoiding overstatement of impacts.

Response

Section 5.0, on page 27 of Appendix K1 (formerly Appendix J1), states “... IMPLAN model was constructed with the 2014 R3 data for Yolo County...” which is the source of the model and data.

Comment LA03-222

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points

For processing, an impact analysis on reduction of processed goods as a result of a reduction in available crop production from the Bypass is not conducted. Perhaps providing a bracket for the potential impacts is adequate for the tipping point analysis. If the impact is minor and within the range of normal year to year fluctuations, that should be better justified in the conclusions or the limitations of the analysis.

Letter Comment J2-1

Response

See Response to Comment LA03-52.

Comment LA03-223

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points

The tipping point analyses appears dated using data from 2005 to 2009. It is likely that economic conditions over the past 5 to tens years looks differently than it did over a decade ago. Re-evaluating these analyses with current data may be warranted.

Letter Comment J2-2

Response

Years 2005 - 2009 production (acreage) data for the Yolo Bypass are available and have been validated by the County (see reference Yolo County 2013, Richard Howitt, Duncan MacEwan, Cloe Garnache, Josue Medellin-Azuara, Petrea Marchand, Doug Brown, Johan Six, Juhwan Lee. Yolo Bypass Flood Date & Flow Volume Agricultural Impacts Analysis Final Report). In addition, these years are consistent with the BPM calibration applied for the economic analysis.

Comment LA03-224

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points

BPM analysis uses 2016 dollars. Tipping point uses 2012 dollars. For clarity, one base year throughout EIR/S seems warranted. It is not always clear what data comes from which sources and how the data are combined. Clarity on this would help understanding of results and conclusions.

Response

The Tipping Point is distinct from the BPM economic impact analysis. Costs are expressed in real dollars in both analyses. The base year used to deflate nominal dollars to real dollars does not alter either individual analysis.

Comment LA03-225

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points

Some of the tables have narrow columns so numbers are wrapped within their cells.

Response

These formatting issues have been corrected.

Comment LA03-226

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page ES-2, Figure ES-1

Figure mistakenly listed as Table ES-1

Response

The text has been corrected to Figure ES-1.

Comment LA03-227

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page ES-4

"2. The scenario evaluates a “representative” mill or processor. The representative mill or processor is modeled after the existing businesses that process Yolo Bypass production, as described below, but business names are omitted to preserve confidentiality.” Later in the text the names of the mills and processors are identified. Presumably the costs and returns data used are not easily connected to a specific mill or processor.

Response

Table 16 on page 4-2 lists 11 northern California mills, 3 of which are in Yolo County. As stated the representative mill is based on a composite and no particular business has been identified.

Comment LA03-228

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page ES-5

“It is also noteworthy that during the current drought California rice acreage fell by more than 25 percent, from 563,000 acres in 2012 to 416,000 acres in 2015 (USDA ERS 2015).” Whenever something is noteworthy it helps to know why and what the implications are. Please explain why and the implications.

Response

The tipping point analysis is concerned with changes in rice acreage and mill shut-down decisions. The drought caused a reduction in irrigated rice acreage by 25 percent and rice mills did not go out of business.

Comment LA03-229

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page ES-5

Crop Insurance section insurance policies are described as commonly used. You assess the implications of insurance coverage and premium increases and it would be useful to know how common.

Response

Section 5.1 on page 5-1 describes the total number of contracts and payout.

Comment LA03-230

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page ES-6

“Insurance companies may increase insurance premiums to compensate for higher expected indemnity payouts even if USDA RMA does not increase the risk classification for rice or processing tomatoes.” An explanation of what determines when this happens and how it would affect the tipping points is needed.

Response

This refers to basic business decisions in that higher insurance payments will be charged by insurance companies when they perceive the probability of payouts will go up regardless of the USDA classification. The direct cost of insurance and change in premium is already reflected in the Tipping Point analysis.

Comment LA03-231

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page ES-6

“It is important to note that agriculture is one of the most heavily regulated and highly variable industries in California. Any increase in costs due to policy action or regulation places significant financial strain on growers” Evidence is needed to support these assertions. Furthermore, as discussed above, explanation is needed on why this is important.

Response

This is a qualitative statement about regulatory environment facing agriculture that gives the reader more context. Text in Appendix K2 (formerly Appendix J2) has been revised to include a citation for the statement.

Comment LA03-232

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page ES-6

“Net returns to land and management per acre decrease by 1.4 to 3.0 percent for rice growers and 0.3 to 0.6 percent for tomato growers...” Discussion is needed on how these numbers are for different years in the data set and are not the result of a sensitivity analysis.

Response

This statement is consistent with data shown in Table ES-2. No additional explanation is needed.

Comment LA03-233

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page ES-8

“The same increase in production risk used in the crop insurance analysis is applied to the bank loan analysis. Namely, there is an increase in Yolo Bypass flooding in all years. The analysis quantifies the effect of increased production risk on access to credit and interest rates using data from the USDA, a local representative at a large lending institution in Yolo County, data from USDA NASS, and a farm loan manager from the Farm Services Agency (FSA). These data and interviews with local lenders were combined to quantify the potential change in loan access and interest rates in response to an increase in bypass farming risk.” An explanation of what data come from which sources and how they are combined is needed.

Response

This is a summary statement in the Executive Summary, and the details of the underlying data sources can be found in the main text, in particular on pages 6-2 to 6-7.

Comment LA03-234

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page ES-9

“In all cases, farm profitability is reduced but growers are maintain a positive margin over variable production costs in the scenarios considered in this analysis. Table ES-2 summarizes the results of the analysis.” The underlined “are” should probably be removed.

Response

The text has been revised to correct this language.

Comment LA03-235

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page ES-9

“Average annual net return above operating cost falls as interest rates on seasonal loans increase.” It is not clear whether these operating costs are annual fixed costs or variable costs, which would already be net returns.

Response

Seasonal loans are variable costs, and the sentence refers to changes in the net returns as loan costs change.

Comment LA03-236

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 1-1

“... Yolo Bypass agriculture also varies with market conditions, but generally averages \$25 million per year, representing approximately 4 percent of the total value in Yolo County.” Clarity on base dollar year needed.

Response

In the tipping point analysis all dollars have been expressed in 2012 dollars, as stated throughout Appendix K2 (formerly Appendix J2).

Comment LA03-237

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 1-2

“This section includes a description of current and historical trends in acreage and the value of production for major crops produced in the county. Yolo County and the Yolo Bypass are summarized separately so that the reader can understand the proportional contribution of bypass agriculture to the agricultural economy of the county. The following two sections describe the tomato processing and rice milling tipping points, respectively. The following two sections describe the loan rate and crop insurance tipping point analyses. Each of these sections provides a narrative and describes the problem, data, methods, results, and sensitivity analysis.” The data are as of 2012 or 2009. A more recent data set is needed to reflect current conditions. It would be more clear if “after that the next two sections describe...” replaces “The following two sections describe,” or something like that.

Response

The text has been clarified to replace "The following two sections describe the loan..." with "After that, the next two sections describe the loan..."

Comment LA03-238

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 2-1

“..in total harvest acreage over the last 30 years can be described as stable.” A look at the data in Table 1 suggests it has increased significantly (~16%) over the past 10 years. This inconsistency should be clarified.

Response

Figure 1 on page 2-2 shows a stable Yolo County crop acreage. The increase in the last ten years does not represent a trend.

Comment LA03-239

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 2-1

“... primarily driven by changes in market conditions for crops produced in the county. The recent increase in acreage since 2010/2011 has been driven by strong demand for fresh fruit, vegetables, and nuts.” Documentation on these conditions and how they affect change are warranted.

Response

Recent expansion in Yolo County is not in crops grown in the Bypass, so these trends will not change the Bypass analysis. This is a qualitative statement about Yolo County as a whole that provides more context for the reader.

Comment LA03-240

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 3-4

“As such, approximately 24 percent of total Yolo County processing tomatoes are sent to the representative facility to meet the production capacity of the processor (300,000 – 400,000 tons).” It is not clear where this 24 percent come from. Additional guidance is needed.

Response

The opening sentence to this paragraph on page 3-4 states that "...processing tomato production ranged between 1.3 - 1.6 million tons." The sentence in question shows the representative facility processes 300,000 to 400,000 tons. This is approximately 24 percent of total tomato production.

Comment LA03-241

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 3-5

“Again using 2009 as an example, the processor processes 386,000 tons with bypass production, but only 230,000 tons (155,000 tons less) without bypass production.” A footnote regarding any rounding issues would clarify these numbers.

Response

The text has changed from 230,000 to 231,000.

Comment LA03-242

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 3-6

“The processor determines the optimal solids mix and ensures this is met through grower contracts. This analysis assumes that 50 percent of the representative plant’s processing activity generates high solids content products and 50 percent of production is low solids content products.” It is not clear why this assumption is being made. It would seem more direct to consider at least the worst case scenario to see if it affects tipping points.

Response

The solids ratio is consistent with the representative processor described in Section 3.3 of Appendix K2 (formerly Appendix J2). As stated on page 3-6, processors determine the solids ratio through grower contracts, and this does not affect the tipping point for any representative processor.

Comment LA03-243

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 4-3

“This forces independent mills to be more focused on profit maximization.” Evidence of independent mills being more focused is needed.

Response

The conclusion follows from standard economic theory, as supported by the preceding two sentences.

Comment LA03-244

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 4-4

“...local rice mill capacities may exceed this estimate.” An explanation of the implications seems necessary here.

Response

As explained on page 4-4 in the earlier sentences in the same paragraph, this is because the discussion is based on a representative mill with a conservative estimate of its capacity.

Comment LA03-245

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 4-5

“This analysis assumes growers receive prices as reported by the USDA NASS, which combines pooled prices (cooperative) and cash prices to create a weighted average for the county (CalAgTrader 2014; USDA NASS various years).” Clarity on how these prices were combined is needed.

Response

The USDA NASS data are cited in the sentence on 4-5. How USDA samples data are beyond the scope of this analysis.

Comment LA03-246

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 4-6

“This cost is estimated to equal \$3.04 per cwt.” A source for this estimate is needed.

Response

The sources are cited in the footnote to Table 18 on page 4-6.

Comment LA03-247

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 4-6, Table 18

Table title says variable costs while the column header uses operating costs. The text above the table refers to operating costs and variable costs. Consistency on terms needs to be reconciled here.

Response

The text has been revised to change "operating" to "variable" cost throughout the section.

Comment LA03-248

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 4-7, Table 21

“Row 1 and 2 in Table 13 summarize the contribution margin and break-even (tipping point) quantity, respectively.” Should this refer to Table 21?

Response

The text has been changed to Table 21.

Comment LA03-249

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 5-1

“Insurance contracts in California decreased by 7 percent, but the total crop insurance coverage increased by 25 percent. That is, the level of coverage per contract has increased. In 2012, there were 1,818 rice crop insurance contracts in California with a net indemnity payout of \$1.2 million and 1,061 tomato crop insurance contracts with a total payout of \$2.5 million (RHIS 2013).” Numbers for Yolo Bypass contracts would be helpful to understand the scale of any changes.

Response

Bypass breakout of numbers is not available and also would not be usable due to confidentiality reasons.

Comment LA03-250

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 5-3

“Table 23 summarizes 2014 California rice and tomato premium subsidy rates in California.”
The underlined passage is not needed.

Response

This sentence accurately describes the analysis shown in Table 23.

Comment LA03-251

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 5-3

“Reinsurance also helps insurance companies may not have enough capital to cover potential indemnity payments (USDA RMA 2014; Sanchez 2014; Otto 2014).” Could the underlined passage use a “who” between “companies” and “may?”

Response

The text has been revised to reflect the comment’s suggestion.

Comment LA03-252

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 5-5

“The most popular insurance policies used in the Yolo Bypass are yield and revenue protection (USDA RMA 2014; Sanchez 2014; Otto 2014).” Data on how popular would be helpful here.

Response

This is a qualitative statement to give the reader some context. Time series data on Yolo Bypass insurance policies are not generally available.

Comment LA03-253

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 5-10

“Yolo Bypass farmer costs of production are likely to differ from the UCCE budgets...” It would be useful to know how different so we can appreciate the use of UCCE budget data here.

Response

Production costs vary from farm to farm, but this proprietary data are not available. UCCE budgets are a publicly available representative source of farm production costs.

Comment LA03-254

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 5-11

“By increasing production risk in the Yolo Bypass in all years, premium rates could increase by \$6.48 to \$12.96 per acre for rice growers and by \$1.36 to \$2.73 per acre for tomato growers.” The use of the word could seems to be unnecessary. If these are results from the model, then there should be no need to hedge. If these are the different values for the different years in the analysis then that is what should be stated too.

Response

Text has been changed to replace "could" with "would".

Comment LA03-255

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 5-12

“In summary, the tipping point analysis of the cost and availability of crop insurance policies for Yolo Bypass processing tomato and rice growers was completed before the final EIR/S Project alternatives were specified. As such, the insurance tipping point analysis considered a hypothetical “high risk” scenario where there would be an increasing in wetted acreage in the Yolo Bypass in all (or most) years. The Project alternatives have been defined subsequent to the initial analysis and it is clear that the Project causes a marginal incremental increase in wetted acreage in some—but not all—years. As of the publication date of the draft EIR/S there is uncertainty over the incremental effect of the Project on rice and processing tomato crop

insurance cost, and availability.” It is not clear why this analysis was not updated. An explanation seems necessary.

Response

The statement in this paragraph on page 5-12 accurately describes the timing of the Tipping Point analysis, and that the Tipping Point was designed as a conservative analysis using the best information available.

Comment LA03-256

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 6-1

“Growers use agricultural loans to purchase land, make improvements, and cover production expenses. Short-term loans are used primarily for operating finance and are the most frequently occurring agricultural loans.” Data on how frequent would be useful to understand scope.

Response

This is a qualitative statement to give the reader some context. Short term production loans are taken on an annual basis to cover production costs, whereas capital loans are much less frequent.

Comment LA03-257

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 6-2

“For this analysis, production interest rates are estimated to equal 5.75 percent, based on the recommendation of an agricultural lending agency (Monaco 2014).” This differs from the estimate on Page 6-1 of 5.5 attributed to Elliessy (2014). This inconsistency needs to be addressed.

Response

The report states "Current lending rates on these loans are on the order of 5.5 percent (Elliessy 2014)." The recommended rate of 5.75 is "on the order of 5.5."

Comment LA03-258

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 6-5

“The analysis uses 2009 USDA NASS prices and yields for Yolo County production to reflect local production conditions.” It is not clear why this year is selected. An explanation is needed.

Response

USDA data from 2009 data were used for consistency with the 2005 - 2009 cropping data and consistency with the concurrent BPM economic analysis. In particular, the Tipping Point analysis requires that Yolo Bypass crop acreage is known, in addition to Yolo County acreage, and 2009 is the most recent data available that has been approved by the County.

Comment LA03-259

Comment

ATTACHMENT 1

Appendix J2, Yolo Bypass Rice and Tomato Tipping Points, Page 6-5

“The nominal interest rate provided by a representative farm lending agency for a production loan is 5.75 percent (Elliessy 2014), which is confirmed with the UCCE budgets (UCCE various years).” The Elliessy citation is in conflict with past Elliessy citation. This 5.75 is associated with Monaco (2014) earlier in this report. This inconsistency needs to be addressed.

Response

The text has been revised to change "Elliessy 2014" to "Monaco 2014." The use of 5.75 percent is consistent throughout Appendix K2 (formerly Appendix J2).

Comment Letter LA04, Stephen Arakawa, Metropolitan Water District of Southern California

Comment LA04-1

Comment

The Metropolitan Water District of Southern California (Metropolitan¹) has reviewed the Draft Environmental Impact Statement/ Environmental Impact Report (DEIS/R) for the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project (Project). The California Department of Water Resources and the U.S. Bureau of Reclamation are acting as Lead Agencies under the California Environmental Quality Act and National Environmental Policy Act, respectively, for this project.

Metropolitan is a cooperating agency and potentially impacted party. Metropolitan fully supports the Project. Our comments identify concerns with technical aspects of the Project, which we urge your agencies to address prior to the next phase of Project design and optimization, to ensure the project is designed and implemented to be as biologically and cost-effective as possible. One issue that we believe needs to be fully analyzed prior to a final EIS/R and decision on the Project

is a potential North Delta discharge-dependent juvenile salmonid survival impact that may be influenced by Project operations. Additionally, we believe flexibility and a robust adaptive management program will be essential for the success of this project, and recommend selection of Alternative 5 due to its enhanced ability to be adaptively managed to maximize benefits while avoiding potentially significant impacts. We look forward to working with your agencies to ensure the Project succeeds.

Footnote 1: Metropolitan is a special district authorized under state law to develop, store and distribute water for domestic and municipal purposes, and to provide, generate and deliver electric power to do so. Metropolitan's 26 member agencies either directly or through retail water purveyors within their own service areas, provide water to the 19 million people in Metropolitan's six-county 5,200 square mile service area. In round figures, Metropolitan develops and supplies nearly half of the total water supply used in its Southern California service area.

Response

This comment is an introductory summary. Responses have been provided below to all detailed comments in the submitted comment letter. Please see Appendix G4, *Yolo Bypass Salmon Benefits Model: Modeling the Benefits of Yolo Bypass Restoration Actions on Chinook Salmon, Modeling Documentation, Alternatives Analysis, and Effects Analysis*. Please also see Appendix C, *Adaptive Management Biological Objectives*, which describes how the project will incorporate focused monitoring efforts and proposed potential management responses. Reclamation and DWR will consider the comments on the environmental impacts of the alternatives received on the Draft EIS/EIR when making a decision on the alternative to implement. Reclamation and DWR are committed to meaningful stakeholder involvement and appreciate thoughts and feedback on the alternatives. The final decision on the alternative to implement will be made by Reclamation and DWR.

Comment LA04-2

Comment

The proposed Project, as described in the DEIS/R, is designed to address requirements of the 2009 National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS) Biological Opinion and Conference Opinion on the Long-Term Operations of the Central Valley Project and State Water Project (NMFS BiOp), specifically Reasonable and Prudent Alternative Actions I.6.1 and, in part, I.7.

The purpose of the Project is to enhance floodplain rearing habitat and fish passage in the Yolo Bypass. The objective of Action I.7 is to reduce migratory delays and stranding of adult fish on the Yolo Bypass. The objective of Action I.6.1 "is to increase the availability of floodplain fisheries rearing habitat for juvenile" salmonids, specifically the listed winter-run and spring-run Chinook, and steelhead. The Project seeks to accomplish this by improving access to seasonal habitat on the floodplain, increase access to, and acreage of, season floodplain rearing habitat, and increase aquatic primary and secondary biotic production to provide food, presumably to benefit rearing salmonids. All sizes and life stages of sub-adult salmonids are commonly referred to as juveniles. However, the target life stage under Action I.6.1 is smaller juveniles, or fry. The

DEIS/R cites references defining Chinook fry as <60mm fork length (FL) (Appendix G3, Part 2, page 1), identifies these as the life stage that would likely benefit the most from implementation of the Project, and indicates that larger “fry-sized” Chinook salmonids, up to 80 mm FL (page 8-65) would also benefit from access to rearing habitat.

Response

Comment accurately summarizes the purpose and objectives of the Project.

Comment LA04-3

Comment

Metropolitan strongly supports implementation of projects that comply with the requirements of the 2009 BiOp and contribute towards recovery of the listed fish species. This is an extremely important and potentially highly beneficial project. Due to year-to-year and intra-year variability in hydrologic conditions and salmonid population demographics, it will be critical to ensure your agencies use the best available data and modeling tools as you continue to the design and optimization phases of the project. General comments on the Project and DEIS/R are provided below; specific comments with recommended changes to the text are included in Attachment A.

Response

Multiple technical studies have been conducted to evaluate the potential impacts to listed fish species. The models used in these studies were considered to be the best available tools. The results of the models are discussed in Chapter 8, *Aquatic Resources and Fisheries*; Appendix G1, *Scenario Analysis of Fremont Weir Notch – Integration of Engineering Designs, Telemetry, and Flow Fields*; Appendix G2, *A Simulation Method for Combining Hydrodynamic Data and Acoustic Tag Tracks to Predict the Entrainment of Juvenile Salmonids onto the Yolo Bypass under Future Engineering Scenarios*; Appendix G3, *Evaluating Juvenile Chinook Salmon Entrainment Potential for Multiple Modified Fremont Weir Configurations: Application of Estimating Juvenile Winter-run and Spring-run Chinook Salmon Entrainment onto the Yolo Bypass over a Notched Fremont Weir*; Appendix G4, *Yolo Bypass Salmon Benefits Model: Modeling The Benefits of Yolo Bypass Restoration Actions On Chinook Salmon, Model Documentation, Alternatives Analysis, and Effects Analysis*; Appendix G5, *Evaluating Adult Salmonid and Sturgeon Passage Potential for Multiple Modified Fremont Weir Configurations: Application of the Yolo Bypass Passage for Adult Salmonids and Sturgeon (YBPASS) Tool*; Appendix G6, *CalSim II & Reclamation Water Temperature Model Output*; and Appendix G7, *Reclamation Water Temperature Model*.

Comment LA04-4

Comment

General Comments

1. Discharge-Dependent North Delta Juvenile Salmon Survival

The Lead Agencies should determine whether project operations have potential to impact downstream juvenile salmonids in the Sacramento River as a result of North Delta discharge-dependent effects described by Perry, et al. (2017), and if so, provide those analyses and identify measures that would avoid or minimize those effects, if found to be significant.

Perry, et al., (2017) describes certain hydrologic conditions under which North Delta juvenile salmon survival is adversely impacted. These conditions appear to coincide with conditions under which the Project would operate, and may be exacerbated by Project operations. The DEIS/R needs to analyze this relationship and ascertain the relative benefits and impacts of different operational scenarios. If the analyses reveal a potentially significant impact, the revised DEIS/R or Final EIS/R should also identify feasible Project operations to avoid or minimize any potentially significant impacts to fisheries and water supplies.

Response

As stated by Perry et al. (2017), modeled juvenile Chinook salmon survival through the Delta decreases sharply as Delta inflows (i.e., Sacramento River flow at Freeport) decline below approximately 1,000 m³/s (~35,300 cfs), while survival is maximized and changes relatively little at inflows greater than 1,000 m³/s.

Over the entire 16-year simulation period (WY 1997 through 2012), simulated flow at Freeport in the Sacramento River was reduced from a flow of approximately 35,000 cfs or greater under the existing conditions scenario to less than approximately 35,000 cfs under Alternative 1 (the preferred alternative) during 50 days. This equates to an annual average of 3.1 days per simulation year, or an annual average of less than 2 percent of the days per simulation year (November through April). The average reduction in flow over the 50 days identified was approximately 1,043 cfs (~30 m³/s).

Reclamation and DWR asked Mr. Perry to apply his juvenile salmonid survival work to Alternative 1 from this EIS/EIR. Appendix W includes these results. Mr. Perry concluded that “differences in survival of daily cohorts were small (<2.5 percentage points between scenarios) because either 1) there was no difference in Sacramento River flows between scenarios (e.g., 1991-1996), or 2) differences between scenarios occurred during high river discharge when the change in survival is expected to be small.” A small potential reduction in simulated juvenile Chinook salmon survival of less than 2.5 percent is not expected to result in a substantial impact to juvenile Chinook salmon in the Delta under Alternative 1 relative to existing conditions or the No Action Alternative.

Comment LA04-5

Comment

Based on review of Knights Landing and Tisdale Weir Rotary Screw Trap catch data prepared by CDFW and provided by DWR, appropriately sized juvenile Chinook are not present at all times when the proposed Project would be operational. If operated to divert water onto the bypass when fry are not present to be entrained, the Project could exacerbate any downstream impacts on juvenile survival without providing the majority of intended Project benefits. One potential mitigation option might be a real-time monitoring system that would include genetics

testing to confirm presence and sufficient numbers of out-migrating fry of listed species as a basis for a decision to open the gates to divert water and entrain juveniles onto the Yolo Bypass. Such a system might be based at the Tisdale Weir Rotary Screw Trap, rather than at Knights Landing, to provide sufficient time to implement a comprehensive decision-making process that would take into consideration potential benefits on the Yolo Bypass, downstream survival impacts, and water supply.

Response

Although project operations based on real-time monitoring may be unrealistic at this time, future adaptive management will seek to maximize project benefits and could consider this option.

Comment LA04-6

Comment

2. Need to augment understanding of hydrodynamic conditions and Chinook fry distribution and behavior to support further design and optimization of the selected alternative, and development of the adaptive management program.

The 2017 Independent Science Panel (Panel) convened by the Delta Science Program noted unresolved issues with the various models used to support alternative evaluation in the DEIS/R. These include, for example, the hydrologic model (SRH-2D) used as input to the ELAM model. Issues include lack of calibration and validation with detailed field conditions, documentation of uncertainty, incorrect hydrodynamic boundary conditions that failed to account for Sutter Bypass inflows and backwater effect, incorrect bathymetry and river stage/discharge data (off by up to 3 feet in river stage and 70% in river discharge. Page 14), and use of a 2-D model instead of a 3-D model (“The Panel does not agree with the conclusion that the 2-D hydrodynamic model is adequate . . .” Page 13), which is needed to simulate important secondary circulation features such as up- and down-welling, and eddies, to better understand how the fish will interact with the different configurations of the structures in different locations. If the hydrology model is wrong, the fish behavior analyses will be wrong; therefore, it is critically important to gain a more complete understanding of hydrodynamics and fish behavior, and how both will interact with, and be impacted by, potential notch configurations, to inform final design, as well as development of an effective adaptive management program.

The Panel’s recommendations relative to the hydrologic modeling are (Page 15):

- a. Use a 3-D hydrologic model because the secondary circulation patterns are important to simulating fish behavior and understanding interactions;
- b. Re-do the boundary conditions, and incorporate better bathymetry, which was found to be critical to fish distribution;
- c. Obtain additional and more accurate discharge and elevation data from additional gauging stations, and incorporate backwater effect;
- d. Leverage other hydrodynamic models and calibrate with field data
- e. Improve documentation of uncertainty and how it is propagated to other models to inform decision-makers on the validity of model conclusions.

The Panel identified similar significant issues with the other models, which we are unable to comment on here due to the limited time available for comprehensive review of the DEIS/R, but which we would like to discuss, along with potential remedies, as technical studies proceed.

Response

See Master Response 2: Science Review Panel. The report found “all of the selected approaches and tools appropriate for selecting a notch location and configuration” (Tompkins et al. 2017). The panel also recommended improvements for consideration in the future. Phase 2 of the Proposed Science Work Plan includes efforts to collect additional flow data, refine the SRH2D model, and develop a three-dimensional (3-D) hydrologic model. The refinements to SRH2D and the 3-D model development will be based on field data collection and other hydrodynamic models (including the representation of the interaction with the Sutter Bypass within TUFLOW).

Additional validation work will increase the confidence in model results under high-flow conditions by incorporating the 2016 USGS bathymetry data. Model uncertainty will be determined by analyzing the 2016 simulated and observed datasets for statistical differences. Boundary conditions and level of certainty in these results will be characterized by a team of subject matter experts. Should the 2016 data be deemed insufficient for high flow events, the team will use TUFLOW as the hydrodynamic model input during periods when the Sutter Bypass is flowing into the model. TUFLOW accurately modeled high-flow events and captured back-water conditions well, and the grid-size and boundary conditions can be reduced to provide a finer-resolution flow input into the ELAM model. These improvements will address the items listed in the comment.

Comment LA04-7

Comment

3. Refinement of evaluation criteria and identification of metrics that focus on the target life stage for the project (appropriately-sized Chinook juveniles; i.e., fry) to monitor and substantiate specific benefits will be essential for development of an effective adaptive management program.

The models and analyses used to support evaluation of the alternatives are based on studies on smolts, which are considerably larger than the target fry stage. Smolts differ from the smaller fry with respect to life strategies and physiology, and are much stronger swimmers that would be expected to respond differently to in-river hydrodynamic conditions and to potential rearing opportunities on the floodplain. The evaluation criteria used to assess relative performance of the Project alternatives were developed 18 months ago, and have not evolved with the increased understanding of differential needs and behaviors of large and small juveniles. For example, as the smaller fry are the intended primary beneficiary of the Project, evaluation criteria, such as, “Increase access to floodplain habitat” and “Increase seasonal floodplain fisheries rearing habitat” would provide a better discriminating metric for refinement and final design of the Project by focusing them on how much benefit they would provide specifically to fry. Our suggestions are: “Increase access to floodplain habitat when fry are present” and “Increase frequency of floodplain fisheries habitat when fry are present to take advantage of it.” Coupling

Rotary Screw Trap catch data with historic hydrologies would provide additional insights for assessing performance of alternative design and operations scenarios.

Response

Appendix G3 includes an analysis of fry entrainment to identify if it would follow different patterns than juveniles. The findings indicated that the entrainment would follow a similar pattern regarding the alternatives that would entrain the most (or least) juveniles into a new gated notch structure. Changing the metrics to focus on fry would not change the relative performance of the alternatives for these criteria.

Comment LA04-8

Comment

Similarly, performance metrics for the adaptive management program should focus on fry rather than on the larger smolts, which would not enjoy as much, if any, benefit from increased access and availability of rearing habitat as fry-sized fish would.

Response

Agreed, and the adaptive management will focus on fry as well as smolts. Smolts are a good indicator of successful rearing on a floodplain, but fry are the fish that will utilize the floodplain habitat for rearing.

Comment LA04-9

Comment

Additionally, the DEIS/R states that peak abundance of Chinook fry occurs in the Upper Sacramento River in September. Review of historic hydrology and Rotary Screw Trap catch data shows pulses of large numbers of out-migrating winter-run fry occurring in the Project vicinity in October. In some years these pulses have occurred at lower flows and river stages than the Project would operate, and in some years at appropriate levels. These early out-migrating fish represent a source of diversity that may be important to the “portfolio effect” and enhanced resiliency of the population, and should be considered for inclusion, rather than being excluded based on an arbitrary November 1 start date for project operations. If agricultural impacts are the basis for selection of this date, it is our understanding that there may be some flexibility based on weather conditions during the summer, with farmers knowing when they will harvest as early as August. We would recommend development of a more flexible set of operational rules as design proceeds.

Response

Under Alternative 1 (the preferred alternative), operations of the intake facility gates would not begin until Sacramento River stage reaches 15 feet, which is one foot higher than the lowest gate invert. At a river elevation of 15 feet, only about 130 cfs would enter the gated notch. The flow

through the gates would not reach full capacity of 6,000 cfs until the river elevation reaches about 27.5 feet (see Chapter 2). Examination of hourly Sacramento River stage at Fremont Weir during October of WY 1997 through WY 2012 shows that a stage of 15 feet would only be met or exceeded less than 14 percent of the time, and a stage of 27.5 feet would never be met (see Master Response 3: Inundation Period for figure). Therefore, based on Sacramento River hydrology, the Proposed Project would generally not be able to operate most of the time during October. See Master Response 3: Inundation Period.

Comment LA04-10

Comment

4. Enhanced food production

Despite being identified as one of the biological objectives for the Project, enhancement of food production is only being addressed by one of the Alternative 4 options. We believe project benefits would be greatly enhanced if the selected alternative included measures to promote inundation water residence time to provide additional food production and rearing time for Chinook fry when they are present.

Response

The potential for increased primary and secondary productivity among the alternatives is described in Section 8.5.4 Increase Aquatic Primary and Secondary Biotic Production to Provide Food Through an Ecosystem Approach. All alternatives promote inundation residence time to provide additional food production and rearing time for Chinook fry when they are present relative to existing conditions.

Comment LA04-11

Comment

The Project should seek to maximize benefits to Chinook fry of enhanced access to the floodplain wherever possible. This would be achieved by (1) maximizing opportunities for food production on rearing habitat in advance of the arrival of fish, (2) providing additional features to achieve more natural floodplain characteristics (such as a benched floodplain) with better volitional passage, (3) seeking dynamic inundation characteristics with more wetting and drying, and (4) retaining water on inundated areas for a long enough period for development of the food web. Currently only one of the alternatives seeks to provide for these, while another identifies programmatic elements. We would recommend placing additional emphasis on this important potential benefit of the Project.

Response

The project objectives are summarized in Chapter 8 of the EIS/EIR. To the extent that data or modeling are available, a comparative summary of performance for each alternative relative to each project objective is included in Section 8.5, Alternatives Comparison. All alternatives were developed to improve habitat and passage conditions for the target species in the Yolo Bypass.

No explicit priorities have been assigned to the project objectives. Therefore, no particular project objective is emphasized over another project objective.

Comment LA04-12

Comment

Preferred Alternative

We urge further consideration of Alternative 5, which we believe provides the best opportunity for maximal operational flexibility and adaptive management options. Based on the original design and current set of evaluation criteria, Alternative 5 did not perform especially well relative to its ability to entrain juveniles. We believe that would change if the evaluation criteria focused on potential benefits specific to fry-sized fish and when they have been present historically with the appropriate hydrology. Additionally, USGS has explored several additional configurations for this, and some of the other, alternatives, with the goal of enhancing their entrainment performance. That analysis is provided in Attachment B. For example, by reducing the spacing between arrays of gates in Alternative 5, and lowering the invert to provide 1000 cfs at 19' river stage, its performance is greatly enhanced; by as much as 100%, as compared to previous analyses.

Summary

In summary, we fully support the Project. At the same time, we believe there is still considerable effort needed to be successful in the design and optimization phases of the Project, and look forward to engaging fully with your agencies and other stakeholders in these technical aspects.

Thank you for the opportunity to comment on the DEIS/R, and your extensive involvement of stakeholders throughout this process. Please feel free to contact me or Dr. Marty Meisler at (213) 217-6364 or mmeisler@mwdh2o.com to discuss these comments or if you have any questions.

Response

Appendix G3 includes an analysis of fry entrainment to identify if it would follow different patterns than considering all juveniles. The findings indicated that the entrainment would follow a similar pattern regarding the alternatives that would entrain the most (or least) juveniles into a new gated notch structure. Comment LA04-32 includes the text from Attachment B. DWR and Reclamation will continue to review relevant information through the selection and design phases of the project. Input from stakeholders and others is appreciated and will be considered when making a decision.

Comment LA04-13

Comment

Attachment A: Executive Summary, Page ES-18

Flood Control.

There is a controversy on flood impacts associated with any rise in WSELs associated with the Project.

Mitigate potential impacts by closing all gates when stages are forecast to rise to moderate flood levels in the Bypass.

Response

Impact HYD-1 evaluated potential increases in bypass flows relative to both the existing conditions and the No Action Alternative and indicated that there was no increase in the expected maximum flow. The Hydraulic Impact Analysis report has been added as Appendix R to provide additional information. The EIS/EIR concludes that there are no significant effects associated with flooding; therefore, no mitigation is necessary under CEQA.

Comment LA04-14

Comment

Attachment A: Executive Summary, Page ES-17

Fish Section.

There is uncertainty on overall fish benefits that is unrecognized and may require changes in Project operations to avoid potentially significant impact on salmon survival.

Perform appropriate analyses to examine effects suggested by recently published papers (e.g., Perry, et al., 2017), which suggest a possible significant impact to North Delta juvenile salmon survival due to Fremont Weir diversions and corresponding North Delta reduced flows which may require revised Project operational criteria to avoid any such impact.

Response

See Master Response 2: Science Review Panel and Response to Comment LA04-4 regarding the Perry 2017 paper.

Comment LA04-15

Comment

Attachment A: Executive Summary, Page ES-20

Decreases in peak WSE in the Yolo Bypass ... of up to 0.15 feet compared to existing conditions

There is no explanation for how this occurs and does not seem logical since none of the proposed actions reduce flow or increase conveyance. Please explain this anomaly since none of the other alternatives cause a reduction in WSELs. What is different about this alternative?

Response

The decrease in peak WSE of 0.15 feet is simulated to occur at the Fremont Weir. The peak WSE at the Fremont Weir would decrease due to the increased release capacity through the gated portion.

Comment LA04-16

Comment

Attachment A: Executive Summary, Page ES-58

Increasing levels of juvenile Chinook salmon stranding and predation above existing levels could reduce survival of juvenile Chinook salmon rearing in the Yolo Bypass under Alternatives 4 and 5.

The discussion does not take into account the reduction in stranding that would result from creation of more natural floodplain habitat under Alternative 5, so it misrepresents the potential impact.

Response

This text is referring to cumulatively considerable aquatic impacts under the alternatives. The potential for increased fish stranding described in this comment is due to the proposed operable weir and fish bypass channel under the programmatic component of Alternative 5.

Comment LA04-17

Comment

Attachment A: Chapter 5 - Description of Alternatives, Page 2-4

The Value Planning team concluded that more focus should be placed on integrating flood projects with restoration efforts and recommended including water control structures to help increase inundation on the Yolo Bypass. Reclamation and DWR have worked to coordinate closely with the ongoing flood projects. To be accurate, the Value Planning group was unanimously dissatisfied with the proposed alternatives and strongly suggested new alternatives that were smaller, more flexible, thoroughly integrated with local needs, all other Bypass programs/actions, and based upon the best available science.

Response

Reclamation and DWR have worked with the stakeholder group that developed out of the Value Planning team to refine alternatives. As a result of this collaboration, Reclamation and DWR added Alternatives 4, 5, and 6 to the EIS/EIR. Alternatives 4 and 5 include the key tenets described in the comment.

Comment LA04-18**Comment**

Attachment A: Chapter 5 - Description of Alternatives, Page 2-4

Percent increase in winter- run Chinook salmon escapement (Salmon Benefit Model)

The salmon benefits model is based upon incomplete science, faulty assumptions and does not include important North Delta discharge dependent survival impacts.

We urge development of a fully calibrated 3D hydrodynamic model and then develop a behavior model that is calibrated to the 2016 tagging results as input to an improved Salmon Benefit Model for use in design and optimization phases of the project.

Acoustic tracking of fry behavior should be completed prior to evaluating entrainment rates.

Response

Please see Response to Comment LA04-4 regarding North Delta discharge dependent survival impacts. For comments regarding fish benefits of proposed project, see Master Response 1: Fish Benefits. For comments regarding model revisions, please see Master Response 2: Science Review Panel.

- DWR and Reclamation believe that the SBM provides good information to allow a comparison of action alternatives (including gated notch size and location).
- DWR and Reclamation are developing a 3-D hydrologic model to help optimize the selected alternative. Reclamation and DWR will then use the 3-D model and other relevant information (such as North Delta discharge dependent survival) to update the SBM.
- As part of the effort to optimize the alternative selected for implementation, DWR and Reclamation are planning additional data collection on the 3-D positioning of fish using split beam, side-imaging sonar arrays. These arrays will record the vertical position of salmon, including a broad range of fry- and smolt-sized fish. This study will help identify the vertical and lateral location of fish and characterize the differences between smolt and fry. Additional data collection about the location and entrainment of juveniles will be monitored during project operations (after construction).

Comment LA04-19**Comment**

Attachment A: Chapter 5 - Description of Alternatives, Page 2-4

Entrainment of winter-run

The Juvenile Entrainment model is based upon the faulty assumption that fry and smolts are equally distributed in the river and does not consider important behaviors that could significantly change entrainment.

We urge development of a fully calibrated 3D hydrodynamic model and then develop a behavior model that is calibrated to the 2016 tagging results as input to a SBM. Acoustic tracking of fry behavior should be completed prior to evaluating entrainment rates.

Response

See Responses to Comments LA04-4 and LA04-18.

Comment LA04-20

Comment

Attachment A: Chapter 5 - Description of Alternatives, Page 2-13

Juvenile salmonid out-migration typically begins during early storms in November

As in indicated in other locations in the DEIS/R, and in the Knights Landing and Tisdale Weir Rotary Screw Trap catch data, outmigration begins as early as August, with peaks through September and October. This is important because a flexible start date, rather than a fixed November 1 date, would enable the Project to capture greater diversity represented by the early out-migrants that is needed for the portfolio effect and resiliency of the population. Appendix G, Part 2, Figure 1 depicts winter-run catch at the KL RST on October 3 during the period from 1997-2011.

Response

See Master Response 3: Inundation Period.

Comment LA04-21

Comment

Attachment A: Chapter 5 - Description of Alternatives, Page 2-14 and 2-37

Final Design BMP

Sediment accumulation and disposal costs appear to be underestimated, especially for alternatives with channels crossing the floodplain perpendicular to flood flows.

Consider partially filling the large scour pond that is currently head-cutting into the weir structure. Partial filling could reduce stranding, predation, and weir maintenance.

Sedimentation and maintenance costs may be significant for the Westside alternatives. Recommend modeling with a sediment transport model before selecting one of these options as a preferred alternative.

Response

The sediment accumulation and disposal costs are based on the past 20 years of O&M sediment removal operations and the "Geomorphic and Sedimentation Analyses TM 02/14/17" and are believed to be appropriate for comparative purposes. The filling of the large scour pond is not

part of this project. It is believed that the sediment analysis is appropriate for comparing the alternatives and additional sediment transport modeling is not necessary to identify a preferred alternative.

Comment LA04-22

Comment

Attachment A: Chapter 3 - Cumulative Impacts, Table 3-2, 3-20

North Delta Flood Control and Ecosystem Restoration Project

The North Delta Flood-Eco project is also known as the McCormick Williamson project. Cumulative impacts analyses should include reasonably foreseeable projects that may affect North Delta flow-dependent impacts, such as California WaterFix, the 8,000 acre Smelt BiOp projects, California EcoRestore projects, McCormick- Williamson Tract project, and DCC/Georgiana Slough potential gate operations.

Response

The list of projects included in the cumulative analysis, Table 3-2, has been revised to change the name of the North Delta Flood Control and Ecosystem Restoration Project to the McCormack-Williamson Project. Section 3.3.3.2 describes the process for selecting projects considered in the cumulative analyses. The California WaterFix and the California EcoRestore projects (which include Delta Restoration pursuant to the Delta Smelt Biological Opinion) are included in the evaluation of the No Action Alternative (expected future conditions), as shown in Table 3-1. The DCC/Georgiana Slough potential gate operations have been suggested as a reoperation of the WaterFix and do not qualify as a reasonably foreseeable project because the gate operations are still very conceptual in nature and have not been sufficiently evaluated to determine whether they should be incorporated into the Project by DWR.

Comment LA04-23

Comment

Attachment A: Chapter 4 - Hydrology, Page 4-5

Table 4-1 shows the annual exceedance probability (AEP) of flows in the Sacramento River at Freeport, as computed through the CVFPP.

This appears to be in error. The design capacity of the Sacramento River at Freeport is 110,000 cfs. This should say that the flows are at the latitude of Freeport and represent the combined flows of the River and Yolo Bypass.

Response

Text modified according to comment. This does not change any conclusions or effects.

Comment LA04-24

Comment

Attachment A: Chapter 4 - Hydrology, Page 4-9

Flood management facilities along the Yolo Bypass include Fremont Weir at the northern end of the bypass, levees on either side of the bypass, and the bypass itself, which conveys floodwaters from the Sacramento, American, and Feather rivers away from West Sacramento.

Should say "...from Sacramento and West Sacramento."

Response

Text modified according to comment. This does not change any conclusions or effects.

Comment LA04-25

Comment

Attachment A: Chapter 4 - Hydrology, Page 4-10

Along this reach, Miner Slough has a design inflow of 10,000 cfs from a series of Delta sloughs that are distributary from the Sacramento River.

Should read: "Along this reach, Steamboat and Miner Sloughs enter into the lower Bypass. Miner Slough has a design inflow of 10,000 cfs from a series of Delta sloughs that are distributary from the Sacramento River. Steamboat Slough has a design inflow of 43,500 cfs."

Response

Text modified according to comment. This does not change any conclusions or effects.

Comment LA04-26

Comment

The flood control effect of changing the long-term flow patterns into the Sacramento River below Freeport was evaluated by comparing the number of times the monthly average flow exceeded 72,231 cfs in the CalSim II results for each of the alternatives. 72,231 cfs represents the maximum existing conditions modeled monthly average flow of 72,231 cfs at Freeport.

Monthly time steps are inadequate for evaluating the flood impacts at Freeport since the Project changes on the peak flows are critical on a daily and weekly basis.

Furthermore, the design capacity of the Sac River at Freeport is 110,000 cfs. It is unclear why the DEIS/R uses the monthly average of 72,231 cfs as the criterion for assessing flood control impacts.

Response

The analysis using the monthly average flow of 72,231 cfs is evaluating if the alternative would increase the peak discharge into the Yolo Bypass relative to the existing conditions. Exceedances of 72,231 cfs would indicate the proposed project would potentially be increasing the flood risk. Since simulated flows under the Project do not increase the peak flow from existing conditions, flood risks within the bypass would not increase from existing conditions.

From an hourly flood-operations perspective, changes in flow in the bypass/decreased flow in the river would be the capacity of the new release structure. However, the long-term effects on upstream storage could result in greater, and more difficult to quantify, effects due to potential differences in upstream storage. The effects on mainstem flow and bypass flow from those longer-term operations, in addition to the change in bypass diversion capacity, are captured by the CalSim II modeling; therefore, the effects analysis adequately addresses the potential for adverse effects and no additional modeling is necessary.

Comment LA04-27

Comment

Attachment A: Chapter 4 - Hydrology, Page 4-21

For the highest historic flood flow routed in TUFLOW, which occurred during the 1997 event, TUFLOW indicated that some portions of the bypass experienced increases in maximum WSE between 0.02 and 0.05 feet for the alternatives relative to the existing conditions hydrodynamic model, as described in Appendix D, *Hydrodynamic Modeling Report*. This agrees with the general range of changes in WSE between alternatives as modeled in HEC-RAS.

An alternative would result in a significant impact under CEQA on hydrology, hydraulics, and flood control if, relative to existing conditions, it would increase the frequency or severity of damaging flood flows, as indicated by the following:

There is a controversy on flood impacts associated with any rise in WSELs associated with this project.

Significant impacts must be evaluated on the changes to short-term peak stages. Using a monthly time-steps to analyze impacts is not appropriate because it fails to disclose significant impacts that may occur on a shorter time-frame. Impact evaluation should be based upon the TuFlow 1997 flood modeling results.

We recommend the Lead Agencies recognize and mitigate impacts by requiring all gates be closed when stages are forecast to rise to moderate flood levels in the Yolo Bypass.

Response

Evaluating the effect of the new bypass diversion structure on an hourly timestep would simply show that the flows into the bypass increase by the diversion capacity, and the flows in the mainstem decrease by the release capacity. The monthly modeling provides information about the long-term effects of the diversion structure, incorporating differences in upstream storage. This long-term effect is potentially more impactful than the effect of just increasing the peak flow into the bypass. As long as the maximum bypass capacity is not exceeded, hourly flow

routing would not provide information about impacts. See also Response to Comment LA04-13; the EIS/EIR analysis shows no increased impact with regard to flooding.

Comment LA04-28

Comment

Attachment A: Chapter 5 - Surface Water, Page 5-16, 5-20

Multiple references to 2030 and 2070 hydrology.

Hydrology is not the proper term; future years do not have specific hydrologic conditions associated with them.

Change references from 2030 and 2070 hydrology to 2030 and 2070 conditions.

Response

Text changed according to comment. This does not change any conclusions or effects.

Comment LA04-29

Comment

For this analysis, a substantial reduction in long-term reliability is defined as a five percent or greater reduction in average annual or average dry and critical year reliability. This amount is assumed to represent a reduction that could not be replaced reliably from other sources such as groundwater pumping or water transfers.

For this analysis, a substantial reduction in monthly reliability is defined as a greater than 10 percent reduction in average monthly water supply.

Five and ten percent changes in reliability represent a potentially large amount of water supply and resulting economic impact due to the need for replacement supplies, alternative operations, storage actions, or shortage. A recent study: Economic Analysis of Sequential Species Protection and Water Quality Regulations in the Delta (Sunding 2017), describes the direct and indirect costs of shortages and fallowing of agricultural lands associated with reductions in SWP supplies.

In addition, future implementation of SGMA regulations will limit the ability of some water users to reliably replace reductions in surface water supplies through groundwater pumping.

Please provide additional rationale or justification for why these thresholds were selected that includes a discussion of potential economic impacts. If a smaller impact could be significant in light of the inability to find alternative supplies or in light of the economic impacts, the threshold should be lowered.

Response

A discussion of the rationale for the thresholds used is provided in Sections 5.3.2.1.1 and 5.3.2.1.2, as follows:

"5.3.2.1.1 Significance Threshold for Changes in Long-Term Average Annual Deliveries: For this analysis, a substantial reduction in long-term reliability is defined as a five percent or greater reduction in average annual or average dry and critical year reliability. This amount is assumed to represent a reduction that could not be replaced reliably from other sources such as groundwater pumping or water transfers. Furthermore, the SWP and CVP generally make their allocations to their contractors in five percent increments, whereas CalSim II computes allocations with much higher precision. Changes in long-term average deliveries and dry and critical year deliveries would be indicative of a systematic change in deliveries due to operation of the project. There are much greater stressors on the system during dry and critical years (as defined by the Sacramento Valley Index described in RD-1641), and reductions in water supply in dry and critical years are much more likely to result in impacts to the contractors due to a lack of ability to secure water supply from other sources."

5.3.2.1.2 Significance Threshold for Changes in Monthly Deliveries

"Some flexibility would exist to adjust for changes in surface water supply from month to month. For example, temporarily increased groundwater pumping could be used to make up for a single month's reduction in supply, but long-term changes in monthly supply could have a significant impact. For this analysis, a substantial reduction in monthly reliability is defined as a greater than 10 percent reduction in average monthly water supply. This amount is assumed to represent a reduction that could not be replaced reliably from other sources such as groundwater pumping or water transfers.

Temporary impacts to water supply include those of short duration related to the construction of the Project alternatives. Because all the Project alternatives would be constructed when water levels are below the proposed Fremont Weir invert elevations, there would be no temporary changes or temporary effects to water supply outside of the Yolo Bypass. Construction within the Yolo Bypass (such as at Agricultural Road Crossing 1) would include temporary measures to ensure water supply was maintained throughout the construction period. The analysis in this chapter, therefore, does not include a discussion of temporary impacts to water supply."

Comment LA04-30

Comment

Attachment A: Chapter 7 - Groundwater, Page 7-14

The total storage capacity of the groundwater basin is estimated to be approximately 66,000,000 AF, with a natural safe yield of 70,500,000 AF (MWD 2007).

The natural safe yield number shown is incorrect.

The total storage capacity of the groundwater basin is estimated to be approximately 66,000,000 AF, with a natural safe yield of 70,500 AF (MWD 2007).

Response

The text in Section 7.1.2.5.5 has been revised to state that the natural safe yield of the Coastal Plain of the Orange County Groundwater Basin is 70,500 AF (MWD 2007). This does not change any conclusions or effects.

Comment LA04-31

Comment

Attachment A: Chapter 12 - Geology and Soils, Page 12-16, 12-20

NOTE: Similar text is included for all west side alternatives

Approximately 75,600 cubic yards would be removed in addition to existing maintenance activities, increasing the annual amount of sediment removal to 372,150 cubic yards from 296,550 cubic yards. From 1986 to 2006, five sediment removal operations were performed on an as-needed basis (1986, 1987, twice in 1991, and 2006). Within that 20-year span, between approximately 530,000 and 1,450,000 cubic yards of soil were removed, per operation, for a total of 4,390,000 cubic yards of soils removed (HDR, Inc. 2017b). The increased sediment deposition from operation of Alternative 6 would require a change from the current frequency of sediment removal actions (as needed) to at least every five years and as needed. Although Alternative 6 would increase the amount and frequency of sediment removal within the bypass, it would remove all sediment deposited between Fremont Weir and Agricultural Road Crossing 1.

The west side alternatives with the conveyance channel running perpendicular to flood flows and bedload transport will be a natural and effective sediment trap. It is highly likely that this feature will require annual sediment removal with specialized equipment (not scrapers) at a significant annual cost. The current text assumes that added deposition is handled in a manner similar to all previous removal projects by DWR. The concentrated buildup of sediment in a critical part of the project cannot wait up to 15 years for the next interval of removal, as has been the practice. The DEIS/R does not address this issue, and should include an analysis of annual deposition into the east-west channel and the method/frequency and cost of sediment removal.

Response

A detailed sediment model is not practical because it would be hard to establish accurate amounts and would not be capable of determining a number of fields that would get sediment deposits. The majority of sediment originates from overtopping events and will settle out in the Fremont Weir Wildlife Area. The removal of agricultural crossings would result in more flushing of the system.

Comment LA04-32

Comment

Attachment B: Summary of entrainment simulation results for supplementary multiple-gate scenarios (by Aaron Blake, U.S. Geological Survey, February 14th, 2018)

The USGS entrainment simulation (Blake et al., 2018) estimated that Alternative 5 would have lower entrainment than single gate designs with a similar overall rating curve, because the discharge ratios for each of the three gate groups that made up Alternative 5 were too low to entrain water from areas of the river with high fish concentrations. (Note that Blake et al. did not account for the effects of preferentially entraining water from the river surface.) In addition, the USGS entrainment simulation predicted that lowering the invert elevation of alternatives would

result in higher entrainment of winter run and spring run Chinook salmon, because Knights Landing catch data suggests that these fish are likely to emigrate during smaller outflow events that result in lower Sacramento River stages at the Fremont Weir (ibid). As a result of these findings we performed supplementary simulation runs to explore the possible effects of modifying the spacing between gates for scenarios based on Alternative 5, as well as exploring the effects of lowering the invert elevations for scenarios based on Alternative 5. This document summarizes the results of these additional entrainment simulation runs and compares the performance of these supplementary scenarios to the scenarios described in Blake et al. in Table 1. For more information on the USGS entrainment simulation see Blake et al. We recognize that lowering invert elevations for the proposed alternatives may not be possible, the purpose of these additional simulation runs is to explore the possible effects of entraining water at lower stages.

The scenarios shown in Table 1 include:

- Scenario 1, simple notch based on the design for Alternative 3
- Scenario 2, simple notch based on the design for Alternative 4
- Scenario 3, simple notch based on the design for Alternative 6
- Scenario 4, simple notch based on the design for Alternative 4, but with the invert elevation lowered to reach a target notch flow of 1,000 cfs at a Sacramento River stage of 19'
- Scenario 5, multiple gate scenario based on Alternative 5, with the invert elevation raised to account for the change in water surface elevation due to moving Alternative 5 to the western end of the Fremont Weir.
- Scenario 6, multiple gate scenario based on Alternative 5, using the original rating curve for Alternative 5 (lower invert elevations than Scenario 5).
- Scenario 7, multiple gate scenario based on Alternative 5, with all the gates grouped together and the invert elevation raised to account for the change in water surface elevation due to moving Alternative 5 to the western end of the Fremont Weir. All gates in Scenario 7 are modeled as being adjacent to their upstream neighbor with no separation between gates.
- Scenario 8, multiple gate scenario based on Alternative 5, with all the gates grouped together and the invert elevation lowered to achieve a target net notch flow of 1,000 cfs at a Sacramento River stage of 19'. All gates in Scenario 8 are modeled as being adjacent to their upstream neighbor with no separation between gates.
- Scenario 9, multiple gate scenario based on Alternative 5, gates separated into two groups: gates A and B are grouped together and CD are grouped together with a 150 meter gap between groups. The gate separation is based on the observed "zig-zag" behavior in the fish tracks. For scenario 9 the invert elevations were lowered to achieve a target net notch flow of 1,000 cfs at a Sacramento River stage of 19'.

The results from these supplementary simulations match my expectations given the data underlying the entrainment simulation: these new results predict that Scenario 7 (Four sets of gates adjacent to each other) will perform very similarly to Scenario 2 (A single notch based on Alternative 4). This result is expected because Scenario 7 and Scenario 2 have very similar peak notch flows and notch stage-discharge relationships. If the vertical distribution of juvenile

Salmon is biased towards the surface of the river then it is reasonable to expect that Scenario 7 will produce greater entrainment than the simulation predicts because the simulation is strictly two-dimensional. Further, the simulation predicted that lowering the invert elevation for Scenario 7 to achieve a similar stage-discharge curve to Scenario 4 would result in a dramatic increase in the entrainment of winter run and spring run (See results for Scenario 8 and 9 in Table 1).

The results for scenarios 5 and 6 suggest that widely spaced multiple notch designs will be less efficient than notch designs (Table 1, Figure 1 & 2) because each of the notches has a relatively low discharge ratio, and as a result, is not entraining water from portions of the river cross-section with high fish densities. Although I have not performed a comprehensive analysis using constant discharge ratio alternatives, the results from the scenarios which I have simulated indicate that entrainment efficiency increases rapidly as the notch discharge ratio approaches 0.2, and, entrainment efficiency decreases to unity for large notch discharge ratios ($DR > .4$, see the figures in my report). Given these results it is likely that a notch discharge ratio of around

0.2 will result in the greatest entrainment efficiency, and will provide the most fish entrainment for the volume of water diverted. The exception is that the multiple notch scenarios appear to be more efficient at stages above bankfull (Figure 1) when the study fish became less concentrated on the outside of the bend. One possible explanation is that in this case the notch discharge ratio for either the single or multiple notch configurations is not high enough to entrain water from the more central portion of the river where fish are concentration, so, entrainment becomes more of a stochastic process in which only the fish that happen to be on the outside of the bend are entrained. If this is the case, then the multiple notch configurations may entrain more fish because each notch represents an additional opportunity to take fish from the outside of the bend. This mechanism does not significantly contribute to entrainment under these simulations, but, if the risks analysis suggest a high minimum stage for diverting water without significant downstream effects then a multiple notch configuration may be the best approach for maximizing entrainment at higher stages.

Response

Moving the gates in Alternative 5 closer together, as described in the comment, would improve performance so that it is similar to Alternative 2, but it would not improve performance so that it is better than Alternative 2. To improve performance compared to Alternative 2, Alternative 5 would also need to have a deeper notch such that 1,000 cfs could enter the notch when the Sacramento River is at an elevation of 19 feet. The comment did not provide adequate information to understand the dimensions of such a facility, but based on the designs of the other gated notch facilities, it would need to be substantially wider and deeper than existing action alternatives. Deeper notch facilities increase the concerns about reverse flows, when the flow from the Tule Canal flows into the Sacramento River (rather than out of the Sacramento River into the Yolo Bypass). Additionally, construction of a larger notch facility would not have the potential to reduce environmental effects of the existing action alternatives; therefore, it has not been included for additional analysis. DWR and Reclamation will consider the information provided by the comment and Attachment B when making decisions on alternatives.

Comment Letter LA05, Melinda Terry, North Delta Water Agency

Comment LA05-1

Comment

NDWA has a statutory mandate under California law to assure that the lands within the North Delta have a dependable supply of water of suitable quality sufficient to meet present and future beneficial uses.¹ In accordance with its statutory responsibilities, in 1981 the NDWA and the Department of Water Resources (DWR/Department) executed the Contract for the Assurance of a Dependable Water Supply of Suitable Quality (1981 Contract).

The crux of the 1981 Contract, which remains in full force and effect, is a guarantee by the State of California that, on an ongoing basis, DWR will ensure through the operation of the State Water Project that suitable water will be available to satisfy all agricultural and other reasonable and beneficial uses in all channels within NDWA's boundaries. The 1981 Contract contains specific minimum water quality criteria to be maintained year-round and obligates DWR to avoid or repair damages from hydrodynamic changes resulting from conveyance of SWP water. The 1981 Contract also provides that, if necessary, DWR will provide alternative water supplies of suitable quality and quantity or to limit the operations of the SWP pumps and reservoirs in order to maintain compliance with the minimum water quality criteria contained in the contract.

Subsequently, during "Phase IV" of the water right hearings that led up to Water Right Decision No. 1641 revised, DWR acknowledged its responsibilities to NDWA by means of a Memorandum of Understanding dated May 26, 1998. Taken together, the 1981 Contract and the 1998 Memorandum of Understanding constitute a broad commitment by DWR to provide a water supply of suitable quality and quantity within the jurisdictional boundaries of NDWA.

DWR's compliance with the binding terms of the 1981 Contract is not discretionary. Moreover, the legal standards that govern DWR's discharge of its obligations under the 1981 Contract are quite different from those that govern DWR's compliance with NEPA, CEQA and other applicable law. For example, while CEQA requires DWR to implement feasible mitigation measures to reduce significant impacts of projects to less-than-significant levels, DWR may not, as a matter of contract law, choose not to comply with the specific requirements of the 1981 Contract based on a determination of infeasibility, or otherwise.

Under the 1981 Contract, the State is prohibited from conveying SWP water so as to cause decrease in natural flow, increase in natural flow, reversal of natural flow direction, or alteration of water surface elevations in Delta channels to the detriment of Delta channels or water users within the Agency. So the Final EIR/EIS should analyze where any of these impacts occur in any of the channels and tributaries throughout the 300,000 acres of the Agency boundaries as a result of this project design and operation.

Footnote 1: North Delta Water Agency Act, Chapter 283, California Statutes of 1973.

Response

As shown in Appendix G6, CalSim II modeling indicates negligible changes to water flow in the Delta region. Exceedance plots comparing each alternative to the basis of comparison indicate that the proposed project is not expected to reduce flows in the Yolo Bypass, and there are not

any changes to flows in the Sacramento River during relatively low flow conditions. As shown in Exhibit G6, tables with differences in flow between the basis of comparison and each alternative indicate changes in Delta inflow are primarily changed during high-flow periods, without any changes in inflow after March 15. The relatively small changes in Delta inflow (greatest reduction of 6 percent), along with the timing of operations, should not result in any impacts to Delta water levels during periods of diversion and therefore would not have notable effects on Delta water surface elevations or reduce water availability during periods of irrigation diversion. Text has been added to Chapter 6 to explain these model results.

The analysis of water quality as shown in Exhibit G6 does not show a decrease in natural flow, increase in natural flow, reversal of natural flow direction, or alteration of water surface elevations in Delta channels to the detriment of Delta channels or water users within the Agency. Therefore, no impairments, degradation to water quality, or impact on beneficial uses are expected as a result of this project.

Reclamation and DWR are not planning to release water from CVP or SWP storage to allow flows to enter the Yolo Bypass.

DWR and Reclamation will continue to honor senior water rights along with existing contracts and agreements. Text has been added to Section 5.1.3 indicating, "There are also hundreds of non-CVP and SWP water users with water rights senior to the CVP and SWP along the Feather and Sacramento rivers, within the Yolo Bypass, and in the Delta, as well as water users with contracts or agreements with DWR and Reclamation. Effects on these water users are not further discussed in this document because DWR and Reclamation will continue to honor senior water rights along with existing contracts and agreements."

Comment LA05-2

Comment

The State (SWP) is also required to either the repair or alleviate damage, improve the channels as necessary, or provide diversion facility modifications required for any seepage or erosion damage to lands, levees, embankments, or revetments adjacent to Delta channels within Agency associated with conveyance of SWP, which includes this habitat project. So the Final EIR/EIS should carefully analyze these potential impacts and design fixes where necessary.

Response

The results of the Hydraulic Impact Analysis determined that the Project would not cause erosion damage to lands, channels, levees, embankments or revetments. In areas where project related levee seepage or erosion impacts were a concern, a slurry wall and revetment was incorporated into the Project for mitigation. These measures were only necessary upstream of Agricultural Road Crossing 1. The Hydraulic Impact Analysis final report has been added as Appendix R to the Final EIS/EIR.

Comment LA05-3**Comment**

The CVP and SWP are operated in accordance with the Coordinated Operation Agreement between the federal government and the State of California.² Therefore, the Project Proponents must ensure that the diversion through new Fremont Weir operable gates into the Yolo Bypass of any CVP and SWP water released from upstream storage does not impede DWR's ability to fully comply with the water quality and availability terms and conditions of the 1981 Contract. The following comments on the Draft EIR/EIS are intended to ensure continued compliance with the 1981 Contract and the requirements of the National Environmental Policy Act (NEPA).

Footnote 2: Authorized by Public Law 99-546

Response

See Response to Comment LA05-1.

Comment LA05-4**Comment**

On June 4, 2009 the National Marine Fisheries Service (NMFS) issued its Biological Opinion and Conference Opinion on the Long-Term Operations of the Central Valley Project and State Water Project (BiOp) that concluded if left unchanged, the SWP and CVP operations were likely to jeopardize the continued existence of four federally-listed anadromous fish species.

Subsequently, the Department of Water Resources (DWR) and the Bureau of Reclamation (USBR) have issued their Fish Restoration Program Agreement Implementation Strategy (FRPA) to create aquatic habitat and fish passage improvements in the Delta as part of their requirement to maintain ESA incidental take permits for the operation of the SWP and CVP pumping facilities in the South Delta.

In order to comply with RPA I.6.1 and I.7 in the BiOps and FRPA, this Yolo Bypass fish restoration project (Project) was initially included in the Bay Delta Conservation Plan (BDCP) as Conservation Measure 2 and is now one of the projects in the California EcoRestore Program.

Response

This EIS/EIR analyzes six action alternatives that would involve a new gated notch structure in Fremont Weir to increase inundation in the Yolo Bypass for juvenile salmonid floodplain rearing habitat. It would also improve fish passage from the Yolo Bypass into the Sacramento River. Implementing one of these alternatives would satisfy RPA Action I.6.1 and contribute towards RPA I.7.

Comment LA05-5

Comment

Deficiencies of Analysis in Draft EIR/EIS

The assumptions used for the analysis and impact conclusions in Chapter 5 Water Supply and Chapter 6 Water Quality are inadequate, failing to identify or analyze the full scope of water supply and quality impacts to water users located in the Yolo Bypass and downstream in the Delta. Diverting water from the Sacramento River during normal, dry or critically dry years through a notched weir may have significant effects on Sacramento River water quality and quantity effecting downstream areas and water users.

Response

See Response to Comment LA05-1.

Comment LA05-6

Comment

Reduced water quality conditions created by operation of new operable Fremont Weir gates could constitute a “taking” of water rights due to the water supplies in and downstream of the Plan Area essentially being degraded to the point of significant impairment of existing beneficial uses, requiring compensation under the law and under the 1981 Contract. The Final EIR/EIS must be revised to acknowledge and mitigate these adverse impacts in the Chapter 6, *Surface Water Supply*, and consider whether the damage to water users is a violation of California’s “No Injury Rule” statutes governing “Priority of Water Rights,” or standards in CEQA and NEPA governing disclosure, weighting of impacts, and cumulative effects on environmental and human resources.

Response

See Response to Comment LA02-1.

Comment LA05-7

Comment

Both chapters analyze impacts to CVP and SWP contractors, but limit analysis of impacts to non-CVP/SWP water users with junior water rights and that are related to implementation of Term 91. Currently, the Draft EIR/EIS only acknowledges water availability impacts to the proposed new North Delta Diversions in the WaterFix project from the alternatives in this Project because of reduced flows in the Sacramento River between Fremont Weir and Delta.

Response

See Response to Comment LA05-1.

Comment LA05-8**Comment**

Section 5.1.3 Non-CVP and SWP Water Users acknowledges there are hundreds of diverters with water rights junior to CVP/SWP that divert from Sacramento River and tributaries and within the Yolo Bypass, but fails to mention there are a total of approximately 2,500 individual water diversion intakes in the Delta, many of which have more senior water rights than CVP/SWP and are gravity siphons that could be negatively impacted by lowered water surface elevations or increases in salinity regardless if Term 91 is implemented or not. The absence of describing the context in which local water supplies are accessed and used, results in the Draft EIR/EIS Water Supply Chapter 5 failing to properly disclose the level of significant impacts imposed on agricultural and municipal water users in the Plan Area.

Response

See Response to Comment LA05-1.

Comment LA05-9**Comment**

Section 5.3.1.4 analyzes how non-CVP/SWP water users with water rights junior to the CVP and SWP could be affected by changes in the application of Term 91, but does not disclose, analyze or mitigate impacts to water users with more senior water rights or water users within NDWA's boundaries. Sec 5.1.2 State Water Project also fails to mention NDWA Contract obligations that DWR must meet.

Response

See Response to Comment LA05-1.

Comment LA05-10**Comment**

Chapter 5 Water Supply also fails to disclose that the water to be diverted from the Sacramento River is from CVP/SWP stored water supplies or that such diversion requires submission of a Change of Diversion Petition to the State Water Resources Control Board so that hearings can be held to ensure that no other legal water users are injured from the diversion of 6,000-12,000 cfs from the Sacramento River into the Yolo Bypass.

Response

See Response to Comment LA05-1. Reclamation and DWR are not planning to release water from CVP or SWP storage to allow flows to enter the Yolo Bypass. Reclamation and DWR will obtain necessary permits after making a decision on which alternative to implement.

Comment LA05-11

Comment

This Project was analyzed in the BDCP EIR/EIS as Conservation Measure 2, however no mention of the impacts identified in the Effects Analysis is included in the Yolo Bypass Draft EIR/EIS. The Final Yolo Bypass EIR/EIS should disclose and describe the many cumulative water surface elevation and water quality impacts identified in the BDCP Effects Analysis and EIR/EIS that would occur with implementation of both Conservation Measure 1 (WaterFix Project) and Conservation Measure 2 such as:

- In the North Delta, flow patterns will be altered by the increased diversions to the Yolo Bypass (CM2) and operations of the new north Delta intake facilities (CM1). Chap 5, page, 5.3-2.

Response

This project does not tier off of a BDCP EIR/EIS, and evaluates different operations of the Yolo Bypass diversion than were considered under the BDCP.

This project is also independent of the Water Fix project, and the Water Fix operations are included (or not included) consistently between the bases of comparison and alternatives. Accordingly, the effect of the North Delta Diversion is already considered as part of this analysis. See Response to Comment LA05-1 regarding changes to water flows and water levels in Delta related to the action alternatives.

Comment LA05-12

Comment

- The average modeled annual inflow at Freeport for the evaluated starting operations was reduced by about 650,000 af compared to existing conditions, primarily as a result of the increased Fremont Weir Spills (CM2). Chap 5, 5.3-3.

Response

This project does not tier off of a BDCP EIR/EIS, and evaluates different operations of the Yolo Bypass diversion than were considered under the BDCP.

The statement above regarding CM2 is similar to the analysis included in this EIS/EIR.

The commenter does not indicate what the impact of changes in flow at Freeport would be. See Response to Comment LA05-1 regarding potential affect to water supply. Chapter 6 addresses water quality-related impacts.

Comment LA05-13**Comment**

- The Freeport median flows in January, February, and March for the evaluated starting ops cases were about 3,000 cfs less than existing conditions flows, reflecting the increased spills at the Fremont Weir into the Yolo Bypass (CM2). Chap 5, page 5.3-4.

Response

This project does not tier off of a BDCP EIR/EIS, and evaluates different operations of the Yolo Bypass diversion than were considered under the BDCP.

The statement above regarding CM2 is similar to the analysis included in this EIR/EIS. See Response to Comment LA05-12.

Comment LA05-14**Comment**

- Overall, proposed operation of Fremont notch extended the duration of spills from 78 days under the EBC2_LLT to 117 days under the ESO_LLT, and the duration of floodplain inundation from 85 to 124 days, respectively. Chap 5, page 5C.5.4-28.

Response

This project does not tier off of a BDCP EIR/EIS, and evaluates different operations of the Yolo Bypass diversion than were considered under the BDCP.

The statement above regarding CM2 is similar to the analysis included in this EIS/EIR.

See Response to Comment LA05-12.

Comment LA05-15**Comment**

- A decrease of 6,000 cfs in the Sacramento River could result in as much as a 3-foot reduction in river stage, although understanding of how notch flows would affect river stage is incomplete. Chap 5, page 5C.5.4-6.

Response

This project does not tier off of a BDCP EIR/EIS and evaluates different operations of the Yolo Bypass diversion than were considered under the BDCP.

Modeled Sacramento River stage at Freeport shows that reductions of three feet or more generally would not occur over the simulation period (WY 1997-2012) and would not occur during most modeled year types over the simulation period.

The commenter does not indicate what the impact of a reduction in river stage would be. See Response to Comment LA05-1 regarding potential effect to water supply. Chapter 6 addresses water quality-related impacts. Chapters 8 and 9 consider effects to fisheries and terrestrial resources, respectively.

Comment LA05-16

Comment

- In addition to flows from new north Delta intakes, BDCP habitat restoration may modify hydrodynamics in the Delta. These hydrodynamic changes in turn can change salinities, DO, turbidity, and flows. Chap 5, page 5C.1-1.

Response

This project does not tier off of a BDCP EIR/EIS, and evaluates different operations of the Yolo Bypass diversion than were considered under the BDCP.

California WaterFix is included in the No Action Alternative within the analysis. Additional restoration actions through EcoRestore are in the cumulative analysis if they are sufficiently far along to be reasonably foreseeable (see Chapter 3 for more information). CalSim II modeling indicates negligible changes to water quality in the Delta as a result of this project. See Response to Comment LA02-1.

Comment LA05-17

Comment

- The median diversions into Sutter and Steamboat Sloughs are lower under the evaluated starting ops because of the Fremont Weir notch increases the diversions to the Yolo Bypass and because north Delta intakes reduce the Sacramento River flow at these two sloughs. In addition, tidal restoration in the Cache Slough Complex was simulated to shift the tidal elevations and reduce the Sutter/Steamboat diversion fractions. The BDCP median diversion flows were reduced by about 1,000 cfs in January, about 5,000 cfs in February, and about 3,500 cfs in March compared to the existing conditions. The reductions in the Sutter/Steamboat Slough diversions were about 40% of the simulated north Delta intake diversions. Chap 5, page 5.3-10.

Response

This project does not tier off of a BDCP EIR/EIS, and evaluates different operations of the Yolo Bypass diversion than were considered under the BDCP.

The BDCP considered actions to increase inundation in the Yolo Bypass, but the actions considered in that document were not the same as considered in this EIS/EIR. The action alternatives in this EIS/EIR were analyzed using refined tools in more detail than the BDCP analysis, and the proposed facilities are different (including the size and depth of the proposed gated notch facility in Fremont Weir). The changes in Delta inflows are typically smaller and

only during high flow periods, as discussed in more detail in Chapters 4, 5, 6, and 8. See Response to Comment LA05-1.

Comment LA05-18

Comment

- Predicted reduced monthly median diversion flows to DCC and Georgiana Slough for evaluated starting ops because the north Delta intakes reduced the Sacramento River flow. The average annual diversions into the DCC and Georgiana Slough were about 3,750 TAF (24% of the Sacramento River flow at Freeport) for the existing conditions and were reduced to about 3,50 TAF (21% of Sac River flow) for the BDCP ops. Chap 5, page 5.3-10.

Response

This project does not tier off of a BDCP EIR/EIS, and evaluates different operations of the Yolo Bypass diversion than were considered under the BDCP.

This project is independent of the Water Fix project, and the Water Fix operations are included (or not included) consistently between the bases of comparison and alternatives. Accordingly, the effect of the North Delta Diversion is already considered as part of this analysis.

The commenter does not indicate what the impact a change of diversion to DCC and Georgiana Slough would be. See Response to Comment LA05-1 regarding potential affect to water supply. Chapter 6 addresses water quality-related impacts.

Comment LA05-19

Comment

- North Delta intakes combined with diversion of water into Yolo Bypass (CM2) inevitably would result in less Sacramento River flow below intakes with potential for greater incidences of Sac River flow reversals in the vicinity of Georgiana Slough and the DCC. Chap 5, page 5C.4-78.

Response

This project does not tier off of a BDCP EIR/EIS, and evaluates different operations of the Yolo Bypass diversion than were considered under the BDCP.

This project is independent of the Water Fix project, and the Water Fix operations are included (or not included) consistently between the bases of comparison and alternatives. Accordingly, the effect of the North Delta Diversion is already considered as part of this analysis.

The North Delta intakes are not an element of any of this project's alternatives; comparing effects with and without the North Delta intakes is inappropriate. Using Alternative 6 as an example since it includes the largest potential diversion to the Yolo Bypass (12,000 cfs), as shown in Exhibit G6, there are no periods in the CalSim period of record where flows below the Delta Cross-Channel gates (C401A) or within the Delta Cross-Channel (C401B) are negative under either 2030- or 2070-condition versions of the alternatives, nor their respective bases of

comparison (existing condition or No Action Alternative). Furthermore, the greatest potential for flow reductions, as a result of an alternative, to result in a flow reversal would occur in November through March, when irrigation diversions are relatively low, and would not be an impact to irrigators within the Delta. See also Response to Comment LA05-1.

Comment LA05-20

Comment

- Removal of road crossings and agricultural impoundments, earthwork and construction of structures to reduce Tule Canal/Toe Drain channel capacities. Chap 4, page 4-16.

Response

This project does not tier off of a BDCP EIR/EIS, and evaluates different operations of the Yolo Bypass diversion than were considered under the BDCP.

The analysis included in this EIS/EIR includes similar activities, but does not include structures that reduce the Tule Canal/Toe Drain channel capacities. Removal and replacement of three agricultural road crossings are considered under separate projects as part of the No Action Alternative and cumulative condition. The action alternatives in this EIS/EIR consider removal and replacement of Agricultural Road Crossing 1, and the new structure would remove flow impediments in the Tule Canal/Toe Drain (rather than reducing capacity).

Comment LA05-21

Comment

- Modification of existing configuration of the discontinuous channels along the western edge of the Yolo Bypass to reduce diversion of Delta water for Yolo Bypass irrigation. Chap 4, page 4-16.

Response

This project does not tier off of a BDCP EIR/EIS, and evaluates different operations of the Yolo Bypass diversion than were considered under the BDCP. The action alternatives in this EIS/EIR do not include modification of existing channels along the western edge of the Yolo Bypass, as included in the BDCP documentation.

Comment LA05-22

Comment

- Operations result in changes in flow and potentially changes in water quality, habitat, and predation. Operational impacts on fish may include changes in spawning, migration, and rearing habitat associated with changes in reservoir operations, diversion of water, and the consequent changes in flow in the Sacramento River and water circulation and quality

through the Delta. Placement and operation of intakes may also result in changes in the potential for predation. Chap 4, page 4-20.

Response

This project does not tier off of a BDCP EIR/EIS and evaluates different operations of the Yolo Bypass diversion than were considered under the BDCP.

Impact FISH-9 in this EIS/EIR evaluates potential impacts to fish species of focused evaluation associated with changes in flow in the Sacramento River under the Project Alternatives. Impact FISH-10 evaluates potential impacts to fish species of focused evaluation associated with potential changes in water temperature in the Sacramento River for each Project Alternative. Impact FISH-13 evaluates potential impacts to fisheries habitat conditions associated with changes in water quality in the Yolo Bypass due to operations of the Project Alternatives. Impact FISH-19 evaluates potential impacts to fish species of focused evaluation associated with potential changes in hydrologic conditions due to re-operation of the SWP/CVP system under the Project Alternatives. Impact FISH-11 evaluates potential impacts to fish species of focused evaluation associated with potential changes in Delta hydrologic and water quality conditions under the Project Alternatives. Impact FISH-17 evaluates predation associated with infrastructure under each Project Alternative. In addition, the Salmon Benefits Modeling accounts for predation associated with the estimated migration path and migration duration for juvenile Chinook salmon in the Yolo Bypass under the Project Alternatives.

Comment LA05-23

Comment

Unmitigated Water Quality and Availability Impacts

The Draft EIR/EIS fails to properly analyze and disclose several potential significant impacts to water users or analyze impacts to DWR's ability to comply with the water supply availability and quality terms and conditions contained in the 1981 Contract.

The Project Proponents need to broaden the analysis in the Final EIR/EIS to include disclosure of following impacts associated with diverting between 6,000-12,000 cfs from the Sacramento River more frequently and for longer duration, and provide mitigation measures if the following impacts are significant:

- Affects to water surface elevations in Delta waterways and the salinity criteria at seven monitoring locations identified in the 1981 Contract from implementation of RPA I.6.1 and I.7.

Response

See Response to Comment LA05-1. DWR will continue to adhere to the terms of the 1981 Contract, including water quality monitoring and flow impact avoidance.

Comment LA05-24

Comment

- If implementation of RPA I.6.1 and I.7 are successful in increasing the abundance of special status or endangered species in the Yolo Bypass, then ESA restrictions could become problems for existing water diversion intakes that currently do not have impacts on listed species.

Response

See Response to Comment IN02-2.

Comment LA05-25

Comment

- Diverting 6,000-12,000 cfs into the Yolo Bypass will lower water surface elevations in the Sacramento River and downstream tributaries, including Sutter and Steamboat Sloughs, reducing water availability for existing intakes.

Response

See Response to Comment LA05-1.

Comment LA05-26

Comment

The Final EIR/EIS should be revised to include:

1. A comprehensive description of the 1981 Contract and the Final EIR/EIS should focus on alternatives that are feasible in light of the requirements of the 1981 Contract.

Response

DWR and Reclamation will continue to honor existing agreements and the modeling considered contractual obligations. None of the alternatives would violate the 1981 Contract. See response to Comment LA05-1. The modeling and assessment of effects accounts for both the existing conditions and a future no action scenario (i.e., no changes to the existing agreements).

Comment LA05-27

Comment

2. Perform hydrologic and hydraulic modeling that assumes the terms and conditions of the 1981 Contract as the “baseline” condition (Existing Conditions), including but not limited to

its water quality requirements, will remain in full force and effect at all seven monitoring locations.

Response

See Response to Comment LA05-26.

Comment LA05-28

Comment

3. Modeling should analyze not only the potential impacts to water quality, water surface elevations, flows and flow direction, increased seepage and erosion resulting from various alternatives, but also the mitigations associated with the repair, modification, or replacement of existing landowner diversion facilities and levees as required under Article 6 of the 1981 Contract due to the modification of the Fremont Weir.

Response

See Response to Comment LA05-1.

Comment LA05-29

Comment

4. NEPA imposes an obligation to analyze and mitigate the significant effects (direct and indirect) associated with “human environment” (42 U.S.C. § 4332) and “economic, social or health” effects (40 C.F.R. § 1508.8). The Final EIS must analyze the extent that any of the project alternatives cause agricultural land within NDWA to be taken out of agricultural production.

Thank you for considering our comments and recommendations for revising the Final Draft EIR/EIS for the Yolo Bypass Fish Restoration Project.

Response

Chapter 11, *Land Use and Agricultural Resources*, provides an analysis of the lands within the Yolo Bypass. Some of the North Delta Water Agency lands are located within the bypass, and are therefore included in the analysis. The analysis has not identified effects to lands outside the Yolo Bypass. See also Master Response 4: Impacts to Landowners and Other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment Letter LA06, Kyle Lang, Reclamation District 1600

Comment LA06-1

Comment

I've been reviewing the documents regarding fish passage. Our main concern is the drainage of Tule canal and public access. Can you direct me to the section in the report that covers this. Dominic and Michele please add any other questions you have.

Response

Increased groundwater levels in the Elkhorn area affecting drainage of interceptor drains to Tule Canal are discussed under SOC-2: Changes to regional economics from changes to groundwater levels surrounding the Yolo Bypass. This discussion is on Page 16-17 for Alternative 1,2 and 3; Page 16-27 for Alternative 4; Page 16-32 for Alternative 5; and Page 16-38 for Alternative 6. Chapter 13, *Recreation*, includes a discussion of the potential effects on public access to recreation areas as part of Impact REC-2.

Comment Letter LA07, Kyle Lang, Reclamation District 1600

Comment LA07-1

Comment

After reviewing section 5 I can see when and how much flow is expected. However I don't see the actual condition of the Tule canal addressed. As in our meeting we asked that the condition and ability of the Tule canal be studied and addressed.

From visual inspection of the Tule canal it has filled in with soil and vegetation. Currently the canal barely handles our natural flow drain which is located 2.2 miles south of the Fremont Weir. This drain is our only drain and we rely on it. If we are unable to use it the cost of pumping water out of the district will cost upwards of \$20,000. We request this be studied and a maintenance plan by DWR be created and part of the funding for this project be the continuing operations and maintenance of the Tule Canal.

Response

As described in Chapter 2, the action alternatives include periodic removal of vegetation and debris from project channels, including the Tule Canal. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process. See Master Response 4: Impacts to Landowners and Other Users of Land.

Comment Letter LA08, Kyle Lang, Reclamation District 1600

Comment LA08-1

Comment

Table ES-2 – HYD-1 – In reading the no action, the text reads as if there is no change from the existing condition. If that’s correct, how can it have “2 additional occurrences of monthly flows greater than the maximum existing conditions monthly flow, 136,869 cfs?” Is this due to unrelated changes to reservoir operations or planned projects upstream of the Fremont Weir?

Response

The No Action Alternative includes sea level rise, implementation of the California WaterFix Project, the Grassland Bypass Project, and several other projects that would affect overall CVP and SWP operations.

Comment LA08-2

Comment

Table ES-2 – HYD-2 - In reading the no action, the text reads as if there is no change from the existing condition. If that’s correct, how can it have “2 additional occurrences of monthly flows greater than the maximum existing conditions monthly flow, 136,869 cfs?” Is this due to unrelated changes to reservoir operations or planned projects upstream of the Fremont Weir?

Response

The No Action Alternative includes sea level rise, implementation of the California WaterFix Project, the Grassland Bypass Project, and several other projects that would affect overall CVP and SWP operations.

Comment LA08-3

Comment

Table ES-2 – WS-3, 4 and 5 – These should be reviewed by water supply interests to confirm they agree with the findings and significance.

Response

The comment indicates water supply interests should review the text and confirm that they agree. There has been substantial outreach to private land-owner, non-governmental stakeholder, government entities and others. Section 24 of the EIS/EIR provides a synopsis of the outreach. During the public review process of this EIS/EIR, the public was invited to review and comment on the draft document. Subsequently, responses to comments received on the document were

prepared. If any parties make a comment regarding water supply or other resources areas, either in agreement or disagreement, the EIS/EIR provides this information in the Final EIS/EIR.

Comment LA08-4

Comment

Section 2.4.2.1 - Identifies 7-8 acres of land that would be purchased for disposal. Long term sediment removal will require an additional 38-43 acres for disposal of soils from periodic maintenance removal of sediment. It's not clear that the impacts of converting Ag land for sediment disposal has been evaluated.

Response

Chapter 2, process for sediment removal has been revised for clarity. Reclamation and DWR would first seek to find a landowner or other user of land that would be interested in receiving the sediment to help with their operations. In this case, the sediment would help farming operations and would not result in land conversion. Reclamation and DWR think that this type of operation is likely possible, and several landowners submitted public comments indicating an interest in receiving this sediment. If Reclamation and DWR cannot develop a mutually beneficial agreement with local landowners, then they would seek to acquire land for sediment deposition. Additional environmental compliance on the land acquisition and conversion would be developed if that need is identified.

Comment LA08-5

Comment

Section 2.4.4.3 - Identifies that grasses and woody vegetation can remain in the channel unless it is an obstruction to flow. Chapter 4 does not evaluate the impacts of leaving the woody vegetation in the channel. Removal of woody vegetation in the floodway has become increasingly challenging from a regulatory perspective.

Response

See Responses to Comments LA03-59 and LA01-5.

Comment LA08-6

Comment

The project description should be revised to remove woody vegetation annually and provide the ESA clearance for the removal.

Response

See Response to Comment LA03-59.

Comment LA08-7**Comment**

The project should also mitigate for any long term impacts that result from this O&M activity.

Response

See Response to LA03-59. The EIS/EIR addresses the effects of construction, operation and maintenance and mitigation is incorporated as applicable.

Comment LA08-8**Comment**

Section 2.4.5 - Says DWR will monitor GW and work with property owners to implement a physical solution if necessary. Who determines what is necessary? Consideration should be given to empowering an independent third party to make the determination of whether there is an impact and what the appropriate mitigation is. I don't think you want DWR deciding this. I also questions whether their approach to this issue is sufficient to meet CEQA requirements to disclose the project impacts. The safe thing to do would be to identify the impact and mitigation measure and then only implement if the groundwater data confirmed the impact.

Response

See Response to Comment LA03-60.

Comment LA08-9**Comment**

Chapter 4 -H&H - The impact of increased flows leading to natural recruitment of riparian vegetation was discussed, but not evaluated. A baseline for woody vegetation along the tule canal should be evaluated and the project should have an O&M element that maintains this annually. The impacts should be evaluated as part of the project so that at the time the maintenance is conducted mitigation is not required.

Response

See Responses to Comments LA03-59 and LA01-5.

Comment LA08-10**Comment**

The Section 7 and CESA consultation should also cover this activity.

Response

See Response to Comment LA03-59.

Comment LA08-11

Comment

Chapter 12 - Geology and Soils - Impact GEO-1 - The analysis identifies a 13 percent increase in annual sedimentation rates and that while sediment removal will need to occur more frequently, it's a less than significant impact. Sediment removal in the floodway has become increasingly more difficult to get permitted and more costly due to mitigation requirements. Any change should be considered significant.

Response

See Response to Comment LA03-59.

Comment LA08-12

Comment

The project should include CESA and ESA coverage for all O&M activities, including sediment removal.

Response

See Response to Comment LA03-59.

Comment LA08-13

Comment

Impacts on RD 1600 gravity drain – The project as proposed will have an adverse impact on RD 1600 drainage. When the notch has water flowing through it, the backwater in the Tule canal will prevent the gravity drain from draining the district. This will require the pump station to be used more often resulting in increased electrical costs and wear and tear on the pump station requiring more frequent maintenance, repair and rehabilitation. The increase in sedimentation that is associated with the project will also reduce the effectiveness of the gravity drain. The project should include periodic removal of sediment in the Tule Canal to avoid impacting the gravity drain.

Response

See Response to Comment LA07-1.

Comment LA08-14

Comment

CESA and ESA coverage should include coverage for this O&M activity.

Response

See Response to Comment LA03-59.

Comment LA08-15

Comment

Public access - In your report it states there is a public parking area. There is no public parking area it is the top of the bypass levee. Department of Water Resources has a easement to maintain the levee and perform flood related activities.

Response

The EIS/EIR has been updated to remove the discussion that public parking is available.

Comment LA08-16

Comment

In your report it mentions a 3000 foot slurry wall starting at the Fremont Weir. This slurry wall needs to continue south approximately 3 miles to the point the ridge cut enters the Tule canal. At this connection the water flows keep the Tule canal from filling in with sediment.

Between the Fremont Weir and Ridge cut the water barely flows due to sediment filling up the canal and primrose growing. There are also 4 beaver dams that go across the entire Tule Canal.

Response

The purpose of the slurry wall is to prevent levee stability concerns associated with having a new channel near the toe of an existing levee. The slurry wall ends where that levee stability concern is no longer applicable. The action alternatives all include maintenance activities to remove sediment accumulation and vegetation (including beaver dams).

Comment LA08-17

Comment

During the project itself what will the impacts be to the district and farmers? Any issues with damaging our roads from traffic?

Response

The EIS/EIR documents all of the impacts that would be associated with the project, including those related to transportation. As mentioned in Chapter 17, roadways within the study area could experience damage and deterioration due to increase in traffic associated with the project's construction. However, implementation of Mitigation Measures MM-TRAN-1 (Periodic Inspection and Minor Repair of Roadways) and MM-TRAN-2 (Establish a Road Repair Agreement with Yolo County) identified in the EIS/EIR would repair any damages to roads. See also Master Response 4: Impacts to Landowners and Other Users of Land for a discussion of agriculture, socio-economic, and compensation issues. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment LA08-18

Comment

Any issues with draining our main canal into the Tule Canal?

Response

Changes in water surface elevations as result of the project are negligible for the 2-year flow event or greater in the Yolo Bypass. Therefore, there are no issues anticipated with flood drainage into the Yolo Bypass. Individual landowner drainage impacts were not evaluated but would be considered during right-of-way or project easement discussions. See also Master Response 4: Impacts to Landowners and other Users of Land and response to Comment LA07-1. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment LA08-19

Comment

CHAPTER 6:

"6.3.3.2.1 Impact WQ-1: Construction- or maintenance-related degradation of surface water quality such that it would exceed regulatory standards or would substantially impair beneficial uses of surface water

Construction activities under Alternative 1 would involve demolition of a portion of the existing Fremont Weir; construction of a headworks structure, intake channel and outlet channel; and grading of the transport channel. These activities could affect water quality temporarily during the construction period. Possibilities include mobilizing sediment and associated contaminants during excavation and grading, release of construction-related chemicals such as oils, fuels, cement, solvents, etc. from improper handling or accidents.

Maintenance activities would include sediment removal every five years within the Fremont Weir Wildlife Area using construction equipment to load and haul it from the bypass; these maintenance activities have the potential to affect water quality in the Yolo Bypass in the same

ways as construction activities at the beginning of the project. Maintenance activities would not include dredging in the Sacramento River or Tule Canal." 6-25 WHY NOT?

Response

See Reponse to Comment LA03-59.

Comment Letter LA09, Todd C. Tommeraason, Laugenour and Meikle

Comment LA09-1

Comment

The project proposes to construct a channel that will discharge flows to the Tule Canal "Tule Pond" without any improvements to the existing Canal downstream of this connection. This canal has not been cleaned out in years and there needs to be an allowance for this maintenance work to be completed during construction of this project and a plan for regular maintenance to clean out vegetation and sediment in the future. These improvements should at a minimum take place from the new point of discharge in to the Tule Canal south to the new agricultural crossing#1. Without these improvements water levels will increase in the area of RD 1600's drainage pumping plant reducing their ability to gravity discharge their drainage and forcing them to pump drainage waters and adding significant costs to their annual budget.

Response

See Responses to Comments LA03-59 and LA07-1.

Comment Letter LA10, Nicole Goi, Sacramento Municipal Utility District

Comment LA10-1

Comment

The Sacramento Municipal Utility District (SMUD) appreciates the opportunity to provide comments on the Draft EIR for the Yolo Bypass Salmonid Habitat Restoration and Fish Passage. SMUD is the primary energy provider for Sacramento County and has facilities within the project area. SMUD's vision is to empower our customers with solutions and options that increase energy efficiency, protect the environment, reduce global warming, and lower the cost to serve our region. As a Responsible Agency, SMUD aims to ensure that the proposed Project limits the potential for significant environmental effects on SMUD facilities, employees, and customers. We have no comments to offer at this time, but would appreciate if the Department of Water Resources would continue to keep SMUD facilities in mind as environmental review of the Project moves forward as SMUD maintains a high pressure gas line that crosses the Yolo Bypass just north of I-80. The current design does not conflict with SMUD's facilities; however, any redesign would need to be subject to additional review by SMUD for conflict aversion.

Please reroute the Project analysis for SMUD's review if there are any changes to the scope of the Project.

Response

DWR and Reclamation are not proposing any changes to the alternatives in the area that SMUD describes.

Comment Letter LA11, Jim Provenza, Yolo Habitat Conservancy

Comment LA11-1

Comment

Thank you for the opportunity to review and comment on the Yolo Bypass Salmonid Habitat Restoration and Fish Passage ("Yolo Bypass Salmonid Project") Draft Environmental Impact Statement/ Environmental Impact Report ("EIS/EIR"). As you know, the Yolo Habitat Conservancy is in the final stages of completing the Yolo Habitat Conservation Plan/Natural Community Conservation Plan (Yolo HCP/NCCP) and expects the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service to issue permits by June 2018. The Yolo HCP/NCCP is a comprehensive, countywide plan to provide for the conservation of 12 sensitive species ("covered species")¹ and the natural communities and agricultural land on which they depend. The Yolo HCP/NCCP's Plan Area encompasses the entire area of Yolo County and prioritizes conservation of habitat in the Yolo Bypass, especially for giant garter snake and western pond turtle. The Conservancy understands the need to improve habitat in the Yolo Bypass for endangered and threatened fish species, but urges the Bureau of Reclamation and the Department of Water Resources to work with the Yolo Habitat Conservancy to develop a preferred alternative that minimizes the impact of the project on endangered and threatened terrestrial species, including the species covered by the Yolo HCP/NCCP. After over 15 years of work on the Yolo HCP/NCCP, the investment of \$3.7 million in state and federal planning grants, and the investment of over \$5 million in local funding, it is critical that the Yolo Bypass Salmonid Project complement, and not conflict with, the Yolo HCP/NCCP.

Footnote 1: Yolo HCP/NCCP covered species include: palmate-bracted bird's beak (*Chloropyron palmatum*), Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), California tiger salamander (*Ambystoma californiense*), western pond turtle (*Actinemys marmorata*), giant garter snake (*Thamnophis gigas*), Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), western yellow-billed cuckoo (*Coccyzus americanus hypugaea*), western burrowing owl (*Athene americanus occidentalis*), least Bell's vireo (*Vireo bellii pusillus*), bank swallow (*Riparia riparia*), and tricolored blackbird (*Agelaius tricolor*).

Response

See Response to Comment LA03-18.

Comment LA11-2**Comment**

Based on our review of the Yolo Bypass Salmonid Project Draft EIS/EIR, we have identified several areas of this document warranting further clarification and analysis. Descriptions and recommendations for your consideration are provided below.

Page ES-17 (Issues of Known Controversy) and Section 23-9 (Controversies and Issues Raised by Agencies and Public – CEQA requires that the EIR address areas of controversy and issues to be resolved (CEQA Guidelines Section 15123(b)(2) and (3)). Page ES-17 and Section 23-9 make no mention of concerns raised by multiple stakeholders, including Yolo County and the Yolo Habitat Conservancy among others, that the project is designed and analyzed in a silo with only superficial consideration of consistency with the impending Yolo HCP/NCCP. These discussions also fail to identify that, as proposed, the project will potentially adversely affect the success of the Yolo HCP/NCCP and the ability of the YHC to successfully establish the Yolo HCP/NCCP conservation reserve system. The Yolo HCP/NCCP identifies approximately 22,316 acres of the Yolo Bypass as Priority 1 acquisition lands and approximately 6,237 acres of the Yolo Bypass as Priority 2 acquisition lands for the Yolo HCP/NCCP reserve system (See Attachment A). These lands have been identified as having a high acquisition priority for the conservation of the Yolo HCP/NCCP's covered species based on the potential habitat that they provide to multiple Yolo HCP/NCCP covered species including giant garter snake, western pond turtle, Swainson's hawk, white-tailed kite, yellow-billed cuckoo, and least Bell's vireo (See Attachments B-G). Please expand the sections of the EIS/EIR identified above to include an adequate discussion of these areas of controversy and issues to be resolved.

[Attachments are maps that are included in original comment letter in Appendix N.]

Response

See Response to Comment LA03-18. Sections ES.7, 1.6, and 23.9 have been updated to include additional concerns regarding areas of known controversy.

Comment LA11-3**Comment**

Preferred Project Analysis -- The EIS/EIR acknowledges that NEPA and CEQA have different requirements but does not accurately or completely articulate the relevant extent of these differences. As a result, the impact analysis is inadequate and it is not possible to discern the required CEQA impact conclusions. The requirements for analysis of the impacts of the preferred project under CEQA are substantively different from the same requirements under NEPA. For CEQA the proper baseline for determining whether the Proposed Project/Preferred Action/Alternative 1 will have adverse impacts is existing conditions or setting (CEQA Guidelines Section 15125), whereas under NEPA the baseline is the No Project/No Action Alternative. This distinction is not apparent in the EIS/EIR, yet is required by law. Please revise the EIS/EIR to clearly reflect this analysis and conclusions, and recirculate the document to allow stakeholders such as the YHC to properly consider the analysis and results.

Response

See Response to Comment LA03-8.

Comment LA11-4

Comment

Alternatives Analysis – The EIS/EIR also does not clearly recognize that the requirements for alternatives analysis under CEQA are substantively different from the requirements for alternatives analysis under NEPA. For CEQA the proper point of comparison for alternatives is the Proposed Project/Preferred Action/Alternative 1 (CEQA Guidelines Section 15126.6(d)). Under NEPA the proper point of comparison for alternatives is the No Project/No Action Alternative. This distinction is not apparent in the EIS/EIR, yet is required by law. Please revise the EIS/EIR to clearly reflect this analysis and conclusions, and recirculate the document to allow stakeholders such as the YHC to properly consider the analysis and results.

Response

See Response to Comment LA03-8.

Comment LA11-5

Comment

Standard for Adequacy – The basic CEQA standard for adequacy is an evaluation of the environmental effects of a proposed project in light of what is reasonably foreseeable (CEQA Guidelines Section 15151). Implementation of the Yolo HCP/NCCP is reasonably foreseeable. The final HCP/NCCP and related EIS/EIR were delivered to the FWS and CDFW on January 23, 2018 and are awaiting the authorization of those agencies for formal release and final action. Both the federal and state governments have extensive investments in this plan and common interests in ensuring its success. In light of this please revise the second to last threshold of significance in Chapter 9 (Vegetation, Wetlands, and Wildlife Resources) related to HCP consistency to include “impending” as well as adopted HCPs, such as the Yolo HCP/NCCP. Also, please revise this chapter generally, and in Impact TERR-11 in particular, to include a complete analysis of the potential for conflict with the Yolo HCP/NCCP, and recirculate the document to allow stakeholders such as the YHC to properly consider the analysis and results.

Response

See Response to Comment LA03-18.

Comment LA11-6

Comment

Chapter 9 (*Vegetation, Wetlands, and Wildlife Resources*) Analysis and Approach – Section

9.3.2 (Thresholds of Significance – CEQA) is missing the mandatory discussion of the following issues (CEQA Guidelines Section 15065(a)(1)): 1) whether the project has the potential to substantially degrade the quality of the environment; 2) whether the project has the potential to substantially reduce the habitat of a fish or wildlife species; 3) whether the project has the potential to cause a fish or wildlife population to drop below self-sustaining levels; and 4) whether the project threatens to eliminate a plant or animal community. Please revise Section 9.3.2 to include these mandatory thresholds, and please revise this Chapter to include an analysis of these impacts, including substantiated conclusions, and feasible mitigation.

Response

See Response to Comment LA03-19.

Comment LA11-7

Comment

Impact TERR-3 – The analysis provided in Section 9.3.3.2.3 and elsewhere in this chapter related to the impact of operations on giant garter snake resulting from changes in the duration of inundation acknowledges “inundation of occupied burrows below the elevation of floodwaters may result in the loss of giant garter snake individuals,” but considers these direct or indirect adverse effects on giant garter snake less than significant. The analysis relies on an increased number of days of inundation as the metric for making this determination; however, there is no discussion of any analysis that was conducted to determine the increase in inundation area resulting from the project that would not otherwise have occurred (such as during below-average water years). This additional inundation may cause a significant impact to giant garter snake and should be evaluated and discussed in the EIS/EIR. Analyzing only a potential increase to the number of days of inundation could artificially deflate the magnitude of the impact by failing to account for the fact that the occurrence of inundation, not just its length, will also be influenced by project implementation.

Response

See Response to Comment LA03-18.

Comment LA11-8

Comment

Impact TERR-5 – The analysis provided in Section 9.3.3.2.5 and elsewhere in this chapter discusses the impact of operations on foraging habitat for bird species. The EIS/EIR contemplates the potential effects on foraging habitat based on the inundation of their prey. This analysis neglects to evaluate the impact of changes to foraging habitat types and cultivation patterns that may result from inundation periods and how those changes may impact the availability and accessibility of prey. For example, Swainson’s hawks utilize tomato fields harvested just prior to their migration period as an important source of prey (Estep 2015). Section 16.3.3.2.2 (Impact SOC-2) states that “rice and processing tomatoes are the dominant

Yolo Bypass crops likely to be affected by Project alternatives”; however, there is no evaluation regarding the potential impact that changes to these crops will have on species that utilize them for foraging habitat. (See Yolo County’s comment letter for more information about the potential for the project to impact cropping patterns in the Yolo Bypass. Yolo County’s letter and attachments are incorporated by reference into this letter.) These potential impacts should be evaluated as part of the overall assessment associated with TERR-5.

Response

See Responses to Comments SA01-16, LA03-117, and NG04-17.

Comment LA11-9

Comment

Impact TERR-11 – The analysis provided in Section 9.3.3.2.11 and elsewhere in this chapter related to conflict with the Yolo HCP/NCCP is conclusory. No evidence or analysis is provided to support the discussion. Also, please correct the citation used. While ICF is a YHC consultant, they are not the lead agency or regulatory author of the plan. Please cite the YHC as the author of the Yolo HCP/NCCP and its related EIR.

Response

See Response to Comment LA03-18.

Comment LA11-10

Comment

Mitigation Measures MM-TERR-10 and MM-TERR-14 – Both of these measures should include mitigating for impacts within Yolo County to the extent that mitigation options are available, and that mitigation coverage is to be sought through the Yolo HCP/NCCP prior to seeking the purchase of mitigation credits elsewhere.

Response

See Response to Comment LA03-18

Comment LA11-11

Comment

Chapter 9 Mitigation Measures -- All of the missing areas of impact identified above, plus the other areas of impact that are identified in this Chapter, could be feasibly lessened or avoided by including the following reasonable and feasible mitigation measures:

- Implement all aspects of the project in a manner consistent with and not in conflict with the Yolo HCP/NCCP.

- Coordinate with the YHC to provide mitigation through the Yolo HCP/NCCP.
- Ensure that no aspect of the proposed project is implemented in a manner that precludes the Yolo HCP/NCCP from successful implementation of the identified Yolo HCP/NCCP conservation measures, conservation strategy, or conservation reserve system.
- Modify the project as necessary to avoid adverse effects to properties identified as Yolo HCP/NCCP priority conservations lands.

Response

See Response to Comment LA03-18.

Comment LA11-12

Comment

Mitigation Measures Not Identified -- As explained in these comments, there are simple, reasonable, prudent mitigation measures the lead agencies can and should adopt that will address many of the concerns raised in this comment letter.

Response

See Responses to Comments LA03-18, LA03-117, and LA11-8.

Comment Letter LA12, Mark Pruner, Clarksburg Fire Protection District

Comment LA12-1

Comment

I do not believe the EIS/EIR analyzed the effects of the projects, including all proposed alternatives, of the build-up of sedimentation (that is, the increase in the elevation of the water/flood beds) and the resulting effects on raising water levels, and the consequent increase in flood potentials.

Please include these analysis in the EIS/EIR.

Please let me know if you have any questions

Response

The analysis in the EIS/EIR was based on the analysis of the effects of sedimentation and the methodology and results included in the "Geomorphic and Sedimentation Analyses TM 02/14/17." This technical memorandum was referenced in the EIS/EIR in Sections 12.1.2, 12.3.3.2.1, 12.3.3.5.1, and 12.3.3.7.1 as HDR, Inc 2017a. The buildup of sediment and resulting effects on raising water levels due to the project was determined to be insignificant. The majority of the sedimentation introduced by the project will be carried through and contained within the proposed channels and Tule canal. The vast majority of sediment introduced into the bypass

occurs during the Fremont Weir overtopping which the proposed project has little impact on. The sedimentation removal operations have been and will continue to be utilized to manage sediment within the bypass. See Response to Comment LA03-59.

Non-Governmental Organizations

Comment Letter NG01, Justin Fredrickson, California Farm Bureau Federation

Comment NG01-1

Comment

The California Farm Bureau Federation (“Farm Bureau”) is a non-governmental, non-profit, voluntary membership California corporation whose purpose is to protect and promote agricultural interests throughout the state of California and to find solutions to the problems of the farm, the farm home and the rural community. Farm Bureau is California's largest farm organization, comprised of 53 county Farm Bureaus currently representing approximately 40,000 agricultural, associate and collegiate members in 56 counties. Farm Bureau strives to protect and improve the ability of farmers and ranchers engaged in production agriculture to provide a reliable supply of food and fiber through responsible stewardship of California's resources.

These comments are based on a high-level review of the DEIS/R, but by no means an exhaustive one. The objective is not to offer a comprehensive review of the various issues, but rather merely to provide some general perspectives on the project from an agricultural perspective. From a statewide perspective, the California Farm Bureau recognizes the significance of the Yolo Bypass as the focus of a variety of state processes of considerable importance in a variety of areas, including statewide water supply reliability, species conservation, flood management, and agricultural preservation. From a local and regional perspective, Farm Bureau likewise recognizes the importance of the Bypass as a unique area, successfully managed today for multiple benefits including flood protection, fisheries and water fowl conservation, hunting, recreation, education and, of course, agriculture. Having reviewed key portions of the DEIS/R, Farm Bureau takes no position on any particular alternative in the DEIS/R, but instead offers the following general observations, bearing in mind the DEIS/R's representations that a final selected alternative may change and (in response to public comments perhaps) might potentially look different than any of the alternatives currently described.

Response

This comment summarizes detailed comments later in the comment letter; specific comments are addressed below.

Comment NG01-2

Comment

As an overarching comment, Farm Bureau is struck by the notable disconnect between the agencies' commitment to 'willing seller' acquisition of any necessary lands or interests in land

on the one hand, and the contrary direction of the agencies' current approach on the other. All parties are, of course, cognizant of the government's constitutional powers of eminent domain. An exercise of eminent domain, however, would be hardly conducive to efficient project implementation or collaborative management—thus, the agencies' choice of 'willing seller' acquisition is, no doubt, a wise one. To make 'willing seller' acquisition an implementable strategy, however, implementation must include, not only adequate compensation for any lands or interests in lands, but also some negotiated suite of financial, contractual, or other suitable mechanisms to address project impacts and make affected landowners, operators, and existing uses in the Bypass whole. Additionally, the project design itself should seek, as fully as possible, to avoid or address potential conflicts, inconveniences, and disruptions of various existing uses and activities that might also, otherwise, work against the agencies' strategy of 'willing seller' acquisition.

Response

See Master Response 4: Impacts to Landowners and other Users of Land for response to issues regarding socioeconomic impacts and compensation to landowners and users. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment NG01-3

Comment

Framed within the context of this overarching comment, Farm Bureau offers the following additional input:

- Assuming affected landowners are found to be amenable in necessary negotiations, a final alternative that can accommodate the following key variables might generally help to promote successful implementation by maximizing project effectiveness, while partially reducing potential impacts:
 - A definite shut-off date on inundation via the proposed operable gates and fish passage structure of March 1st or earlier.
 - Managed inundation, including means of control to maximize localized inundation times and depths (for rearing habitat and to reduce predation, to limit impacted acreages and downstream impacts, and to make efficient use of water, for example), limiting impacts, promoting adequate drying, and maximizing desired benefits at lower flow thresholds (e.g., 3,000 cfs or less with management).
 - If flow management within the Bypass is not feasible on a willing-partner basis, then lower flows and earlier shut-off times can nonetheless help to minimize impacts on existing uses.

Response

See Master Response 3: Inundation Period. Alternative 4 analyzes the environmental impacts and benefits of an alternative with lower flow (3,000 cfs) and managed inundation, as suggested in this comment. It includes either a March 15 or a March 7 operational end date.

Comment NG01-4

Comment

- Operations proposing inundation via the proposed operable gates after March 1st work against a collaborative partnership and ‘willing seller’ scenario, and unacceptably impact existing agricultural operations in the Bypass by multiplying uncertainties and complicating factors beyond the growers’ control (e.g., drying and prep times, weather, increased flood risks, reduced yields, rice prices, crop insurance, contracts to supply, leasing arrangements, terms of and access to bank loans, etc.).

Response

See Master Response 3: Inundation Period and Master Response 4: Impacts to Landowners and other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment NG01-5

Comment

- An implementation approach that can achieve sufficient support from willing partners in the Bypass will need to fully account for, and provide financial mechanisms to address various impacts of increased inundation either not recognized or only partially acknowledged and analyzed in the DEIS/R including:
 - increased costs of and the need for ongoing maintenance of ditches, canals, roads, levees, and drainage and irrigation structures, etc.;
 - potential new liabilities and permitting challenges or burdens relating to the increased presence and potential take of threatened and endangered species;
 - the related need for regulatory assurances, be that in the form of some safe harbor protections or another appropriate mechanism;
 - impacts of increased sediment loading and the need for debris removal.

Response

See Master Response 4: Impacts to Landowners and other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process. See also Responses to Comments

IN02-2 with regard to the potential for increased exposure to endangered species and LA03-59 with regard to O&M activities.

Comment NG01-6

Comment

- As another way to promote willing partner cooperation within the Bypass and to avoid, minimize, or mitigate for potential adverse impacts, the agencies should consider directly incorporating, or should at least closely coordinate with, the County of Yolo to implement the infrastructure and drainage improvements outlined in the County's April 2014 "Yolo Bypass Drainage and Water Infrastructure Improvement Study."¹

Footnote 1: Accessed February 14, 2018 at <http://www.yolocounty.org/home/showdocument?id=23985>.

Response

See Master Response 4: Impacts to Landowners and other Users of Land with regard to socioeconomic impacts. Discussions relating to compensation for socioeconomic impacts, if any, would take place outside of the CEQA/NEPA process.

Comment NG01-7

Comment

If implemented, as noted, the proposed project will complicate farming in the Bypass and have significant impacts on the local and regional economy that are only partially analyzed and quantified in the DEIS/R. If only out of self-interest, however, the State of California should recognize the importance of sustaining existing agricultural uses in the Bypass for at least two reasons: First, income from agricultural lands in the Bypass are what financially sustains many recreational, educational, and wildlife uses of Bypass lands owned by the Department Fish and Wildlife. Secondly, and even more importantly, it is the continuous plowing, tilling, and harvesting of agricultural lands in the Bypass that saves the taxpayers and the State of California many millions of dollars a year, by keep the Bypass clear and open, and maintaining flood adequate conveyance capacity in the area. It is important to understand that, in the flood-prone Yolo Bypass, the line between a profit-turning, viable farming operation Yolo Bypass, on one hand, and a non-viable, money-losing one, on the other, is perhaps a much thinner one than the agencies realize. Protecting and sustaining the delicate web of conditions that allow farming to continue in the Bypass is integral to all of the important functions the area currently fulfills—not least of all of them, critical flood protection for adjacent urban areas in both Yolo and Sacramento County.

Response

As analyzed and discussed in Chapter 16, the proposed project will continue to sustain agriculture in the Bypass. While the proposed project might impact crop yields and might cause landowners to temporarily remove land from production or shift to alternative crops resulting in

less agricultural income, it would not cause permanent conversion of lands. See Master Response 4: Impacts to Landowners and other Users of Land with regard to socioeconomic impacts and compensation. Discussions relating to compensation for these impacts, if any, would take place outside of the CEQA/NEPA process.

Comment NG01-8

Comment

If implemented, entities and individuals farming and/or owning lands in the Yolo Bypass will face numerous increased burdens associated with the proposed Bypass Salmonid Habitat Restoration and Fish Passage Project. In reality, however, these same entities, individuals, and landowners already contend with various burdens in providing the general public and the State of California numerous invaluable benefits and services inherently that are, in turn, linked to current uses and functions of the Bypass itself. To make the proposed project a feasible one, there is a present need for the agencies to candidly identify increased burdens and impacts, and to then come to the table with all affected persons in an open and collaborative spirit. Policy calls must be made, negotiations had, and hard commitments made. These are aspects that are not captured well in the DEIS/R. For a successful project, however, they are essential.

Response

See Response to Comment NG01-7.

Comment Letter NG02, John McManus, Noah Oppenheim, Dick Pool, Jeff Richards and James Stone, Golden Gate Salmon Association, Pacific Coast Federation of Fisherman's Association, Institute for Fisheries Resources, Coastside Fishing Club, and Nor-Cal Guides and Sportsmen Association

Comment NG02-1

Comment

I am writing to offer the following comments on behalf of the Golden Gate Salmon Association, Pacific Coast Federation of Fishermen's Associations, Institute for Fisheries Resources, Coastside Fishing Club and Nor-Cal Guides and Sportsmen Association regarding the DEIS/DEIR for the Yolo Bypass Salmon Habitat Restoration and Fish Passage Project. Our organizations, which represent commercial, recreational and other aspects of the salmon fishing industry, strongly support a well-designed salmon fish habitat and passage project for the Yolo Bypass. To this end, we strongly recommend the selection of a different preferred alternative in the final document that would maximize benefits for Central Valley salmon runs.

Preferred Alternative: The draft document states that Alternative 1 is "currently" the preferred alternative (P. 2-17). Fortunately, this language suggests that the selection of this alternative is not a final decision. Our organizations recommend that Alternative 6 be selected as the preferred alternative, both because of its 12,000 cfs capacity and its selection of the west side of Fremont

Weir for the location of the primary intake facility. However, we believe that some features considered in other alternatives should be considered for inclusion in a final preferred alternative based on alternative 6. These issues are discussed in our specific comments below.

Response

See Response to Comment LA03-6.

Comment NG02-2

Comment

Specific Comments

Inadequate Focus on the Fall Run: The criteria for developing alternatives (Table 2-2) are focused on winter-run and spring-run Chinook, Central Valley steelhead and green sturgeon. This focus is seen in many places in the document (e.g. Table 8-3). In addition to this focus on listed species, it is important for the document to reflect the fact that fall-run Chinook salmon could also benefit from a carefully designed project. Given that some fall run characteristics, such its upstream migration period and the details of its outmigration period, vary from those of some listed species, we believe the final document should pay greater attention to the needs of and potential benefits for the fall run. The need to add the fall run to the criteria for selecting and evaluating alternatives is discussed below.

Response

The purpose and need/project objectives for the project are focused on implementing RPA Actions I.6.1 and I.7 from the 2009 NMFS BO. Fall-run Chinook salmon are not listed under the federal ESA, so they are not included in the NMFS BO. While the action alternatives are not designed to benefit fall-run Chinook salmon, the EIS/EIR recognizes that the action alternatives would provide some benefit to fall-run (as analyzed in Chapter 8).

Comment NG02-3

Comment

Additional State Mandates for Salmon Restoration: As the draft indicates (p. 8- 55), restoration of the fall run, specifically to double the naturally reproducing population from 1967-1992, is required by the CVPIA. This doubling requirement is also included in the State Board Bay-Delta Water Quality Control Plan and in Senate Joint Resolution 19 (1983.) However, the discussion of state plans, policy and regulations (Sec. 8.2.2) does not discuss either of these state doubling requirements. Further, Senate Joint Resolution 7, passed in 2017, urges state agencies to make “salmon fishery restoration an urgent and high priority.” In addition, the discussion of relevant state plans, policy and regulations does not include the fisheries responsibilities associated with the Public Trust or Section 5937 of the Fish and Game Code.

Response

Additional relevant laws and regulations were added in Section 8.2, Regulatory Setting, of the Final EIS/EIR.

Comment NG02-4

Comment

Together, these mandates require a more ambitious approach to salmon restoration and to a greater focus on the fall-run. We recommend that all of these additional salmon restoration mandates be included in the final document. As a result of all of these obligations, GGSA believes that fall run should be listed on the document's criteria for developing and evaluating alternatives. We also believe that these obligations suggest that the preferred alternative should reflect the approaches with the greatest potential to benefit salmon.

Response

See Response to Comment NG02-1 and NG02-2.

Comment NG02-5

Comment

Status of Central Valley Salmon Runs and the Salmon Fishery: The draft includes a discussion of the fish species evaluated. That discussion includes all of the salmonids in the Sacramento Valley. However, that section of the document does not include a thorough discussion of the current status of all of these species. That status is important, because it highlights the need for urgent and ambitious action to maximize benefits for salmon from this project.

The California salmon fishing industry, as well as the coastal salmon fishery in Oregon, rely overwhelmingly on Central Valley fish. As a result, the fishing industry suffers significantly when Central Valley runs decline. Those runs, the fishing industry and fishing communities, have suffered dramatic harm in the past decade. The following are only a few examples of this decline.

- In 2008-2009, as a result of low adult populations, the California commercial and recreational salmon fisheries were closed for the first time in state history. This decision shut down an industry that, in recent previous years, had generated 23,000 jobs and than \$1.4 billion in annual economic activity.
- In 2017, as a result of low adult populations, commercial salmon fishermen along the California coast lost 2/3 of the fishing season they had five years ago.
- The California commercial salmon harvest has fallen more than 90 percent, from nearly 800,000 fish a quarter century ago, to 56,000 fish in 2016. The final numbers for the 2017 commercial harvest will be similarly poor.
- During 2014 and 2015, 95 to 98% of juvenile fall and winter run salmon were killed in the Sacramento River as a result of poor water management.

- Sacramento River basin winter and spring run spawning adult populations have reached dangerous lows in the past year.

The document should be revised to reflect recent trends in the populations of all runs of salmon in the Sacramento Valley. This is important context that should be considered in selecting the final preferred alternative.

Response

Additional language discussing the status of salmon fisheries was added to the Environmental Setting section (Section 8.1).

Comment NG02-6

Comment

Benefits of Larger Intake Capacity: GGSA supports the largest potential capacity for the operable intake facility for this project. Alternative 1, the current preferred alternative, has a capacity of only 6,000 cfs, only half of the 12,000 cfs capacity of Alternative 6.

The description of Alternative 6 clearly states the benefit of a larger intake capacity: the large capacity in that alternative is intended to draw more fish and water into the bypass (p. 2-64). Greater flows that would result from this alternative will result in a greater area of inundation and greater food production. Perhaps most importantly, a larger capacity can maximize the number of fish that benefit from Yolo Bypass floodplain habitat. As a result, a 12,000 cfs capacity intake facility offers the greatest potential benefits for listed and non-listed species in terms of the number of fish that would receive benefits, increased growth rates and increased survival to adulthood. A large capacity maximizes flexibility and maximizes relatively natural floodplain habitat, while retaining the potential benefits from managed wetlands.

The document demonstrates that the potential benefits from a larger intake facility are dramatically greater than the current preferred alternative. The following are a few examples, excerpted from the draft.

Average Number of Juvenile Fall-Run Chinook Rearing in the Bypass for One or More Days (Difference between existing conditions and the alternative)

	Alternative 1	Alternative 6
Entire Simulation Period	1,574,2515	2,676,043
Above Normal Years	2,557,474	4,217,227

Source: Tables 8-11, 8-40

Average Number of Fall-Run Chinook Adult Returns (Difference between existing conditions and the alternative)

	Alternative 1	Alternative 6
Entire Simulation Period	11,176	18,580
Above Normal	16,281	25,251

Source: Tables 8-8, 8-37

Average Monthly Wetted Area (Difference, in km², between existing conditions and the alternative)

	Alternative 1	Alternative 6
February – Entire Simulation Period	14.8	22.4
February - Above Normal	26.9	39.1

Source: Tables 8-7, 8-36

In summary, alternative 6 could produce up to 51% more floodplain habitat, benefit up to 70% more juveniles and produce up to 66% more returning adults. These compelling numbers clearly indicate that Alternative 6 should be the foundation for the final preferred alternative.

Response

See Response to Comment LA03-6. Some of the factors DWR and Reclamation must consider are that while Alternative 6 would have greater benefits for juvenile salmonids associated with inundated floodplain habitat, it would have less benefit for adult fish passage. Section 8.5.6 compares fish passage for the six action alternatives, and Table 8-52 shows the differences in how frequently the alternatives could meet depth and velocity criteria for fish passage. The wider channel in Alternative 6 results in more frequent depth and velocity barriers (and fewer days that the alternative meets fish passage criteria) than Alternatives 1, 2, 3, and 5. Additionally, Alternative 6 would not be able to provide passage after March 15 because of the size of the channel. (Flows after March 15 would be constrained to be less than the available capacity in the Tule Canal, or up to about 300 cfs, and these flows would be too small to maintain adequate depth for fish passage in the Alternative 6 facilities.)

In addition to fish passage performance, Alternative 6 would have greater construction-related impacts because of the larger size of the gated notch and transport channel. Chapter 9 describes the temporary and permanent impacts to terrestrial biological resources, and the larger footprint would have more potential effects (although they are mitigated to less-than-significant levels for all action alternatives). Chapter 18 describes the impacts to air quality and climate change, and finds that Alternative 6 would exceed general conformity de minimis thresholds (resulting in a significant and unavoidable impact) when Alternatives 1, 2, and 3 would have less than significant impacts. Noise impacts (see Chapter 20) from construction under Alternative 6 would exceed the Sutter County General Plan and result in significant and unavoidable impacts.

Comment NG02-7**Comment**

Inundation Period: The alternatives included in the document primarily include an inundation period that extends to March 15. However, alternative 4 provides for ending the inundation period by March 7 or March 15 (Table 2-4.) We recommend that the final preferred alternative include the longer inundation period, which would increase benefits for spring and fall run Chinook salmon. We also urge the Bureau to consider an inundation period that extends beyond the end of March.

The spring-run salmon outmigration period extends until mid-May (p. 2-2), and the fall run outmigration period extends into June. The operations of the operable gate should match this

outmigration period to the greatest extent possible. The document should carefully justify any inundation period shorter than the full outmigration period for all salmon runs.

Response

See Master Response 3: Inundation Period.

Comment NG02-8

Comment

The management of operable gates after the final inundation period is also important. Specifically, we urge the Bureau to adopt an operations strategy that allows for the use of the operable gates to extend brief flood events that overtop the weir after the conclusion of the inundation period. This could extend the salmon benefits of brief flood events late in the season. For example, should a natural flood overtop the weir for a day or two in late March or early April, we urge an operations plan that allows for the operable gates to be used to extend that inundation period for a total of 10-14 days.

Response

See Master Response 3: Inundation Period.

Comment NG02-9

Comment

Location of Intake: The summary of alternative 6 suggests that the location of the gate on the western portion of the weir would increase the number of fish entrained into the Yolo bypass (P. 2-64.) Clearly, the size of the opening produces significantly greater benefits for salmon. It also appears that a Western location would deliver additional benefits. However, the draft does not clearly describe the benefits of different gate locations. We recommend that the final document clearly discuss the potential benefits produced by the location of the intake, as distinguished from capacity. For example, the document does not include an evaluation of benefits from a 12,000 cfs facility at locations different from that in Alternative 6. GGSA recommends that the preferred alternative include the location, as well as the size, that would provide the greatest benefits.

Response

The EIS/EIR analyzes the same notch configuration in the eastern, central, and western locations (Alternatives 1, 2, and 3, respectively). The purpose of this evaluation is to compare the impacts and benefits of these locations. Generally, the differences in number of fish entrained at these locations are small (as described in Chapter 8). Please also see Response to Comment NG02-6.

Comment NG02-10

Comment

Integration of Gate Operations with Pulse Flows: GGSA believes that pulse flows should be required on the Sacramento and Feather Rivers to increase the survival of outmigrating juvenile salmon and believes that such flows may be required in the future. The document should be revised to discuss the potential additional benefits from integrating the operations of new operable gates in the Fremont Weir with potential future spring pulse flows.

Response

Modifying reservoir releases would be considered a separate action and is therefore beyond the scope of this project. Whether and to what extent new pulse flows might be required in the future is not reasonably foreseeable and, thus, are not analyzed in this EIS/EIR. If pulse flow were to be required in the future, however, and provided that the pulse flows occurred prior to March 15, the pulse flows would likely raise the river stage sufficiently to allow for project inundation to occur.

Comment NG02-11

Comment

OCAP BO Mitigation Requirement: The document should include a clear analysis of the relevant mitigation requirements in the OCAP BOs and the extent to which alternatives would fully meet the floodplain habitat mitigation requirement.

Response

Section 8.5: Alternatives Comparison offers a comparative summary of performance for each alternative relative to each project objective.

Comment NG02-12

Comment

Fish Passage Related to Additional Management Options: GGSA is supportive of potential additional management actions that could provide additional benefits in the bypass, including the use of managed wetland/rice field habitat to provide additional rearing habitat, as well as berms to allow the inundation period in the bypass to be extended. Both of these options offer the potential to provide additional floodplain benefits in drier years. However, in both cases, it will be essential to ensure that upstream and downstream fish passage is unimpaired and that facilities related to these management options do not create predation hot spots. We understand that there is a new proposed facility design related to managed wetlands that could reduce the potential for fish migration impacts. We look forward to learning about that design, and reading the updated fish passage analysis, in the final document

Response

DWR and Reclamation will select an alternative based primarily on the alternative's: feasibility, ability to entrain juvenile salmonids, floodplain habitat benefits, and ability to provide unimpeded adult fish passage. DWR and Reclamation are not proposing any modifications to Alternative 4 or any Alternatives at this time. If any modifications were to be made in the future, DWR and Reclamation would consider the need for supplemental environmental review and would carry out the appropriate review as required by law.

Comment Letter NG03, Bob Schneider, Tuleyome***Comment NG03-1*****Comment**

Tuleyome submits these comments in support of the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project.

This project will implement the National Marine Fisheries Service Biological and Conference Opinion on the Long-Term Operations of the Central Valley Project and State Water Project (NMFS BO) issued on June 4, 2009.

We appreciate the on-going research that has been conducted in the Yolo Bypass demonstrating the effectiveness of using this flood plain for rearing salmon and the potential for helping to restore salmon in the Sacramento River.

Tuleyome looks forward to this critical project moving forward as soon as possible.

Response

Reclamation and DWR are planning to begin construction of the selected alternative in 2020 or 2021.

Comment Letter NG04, Pete Bontadelli, Yolo Basin Foundation***Comment NG04-1*****Comment**

Thank you for the opportunity to comment on the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project ("Yolo Bypass Salmonid Project") Draft Environmental Impact Statement/Environmental Impact Report ("EIS/EIR"). We recognize the tremendous effort of the California Department of Water Resources and the U.S. Bureau of Reclamation to develop the alternatives, model fisheries and hydraulic impacts, and produce the document and appendices. Our comments focus on the need to balance the long history of state, federal, and local partnerships in the Yolo Bypass to conserve habitat for terrestrial species with the interest in providing habitat for threatened and endangered fish species. Additional comments are also included in a table enclosed with this letter (Attachment 1). The Yolo Basin Foundation asks the state and federal government to take no action that will undermine the decades of successful

conservation work already providing benefits to countless species in the Yolo Bypass that enjoy the support of thousands of local citizens, as well as foundations, conservation organizations, and federal, state, and local agencies. The Yolo Basin Foundation believes we can help the state and federal government identify a sustainable and successful mix of project actions and mitigation measures that will provide both benefits to fish and continue the conservation work already underway for terrestrial species. We can only develop this solution if the Yolo Basin Foundation, farmers, wetlands managers, other stakeholders with a land management interest in the Yolo Bypass, the Yolo Habitat Conservancy, and Yolo County are an integral part of the process to develop a preferred alternative. Now that the EIS/EIR is publicly available and we have information about potential impacts, the Yolo Basin Foundation hopes to start an important conversation about project details.

Response

Reclamation and DWR will consider the comments on the environmental impacts of the alternatives received on the Draft EIS/EIR when making a decision on the alternative to implement. Reclamation and DWR are committed to meaningful stakeholder involvement and appreciate thoughts and feedback on the alternatives, but the final decision on the alternative to implement will be made by Reclamation and DWR.

Comment NG04-2

Comment

Our comments focus on four areas:

Background on existing Yolo Bypass habitat conservation. The Yolo Basin Foundation believes it is critical for representatives of the state and federal government responsible for the EIS/EIR to have a thorough understanding of conservation efforts successfully undertaken over decades in the Yolo Bypass. These efforts required tens of millions of dollars in state, federal, and local investments, as well as thousands of hours of volunteer and government agency staff time. In addition to the Yolo Bypass Wildlife Area; hereafter Wildlife Area (see Exhibit A), the Yolo Bypass currently contains approximately 14,000 acres of state and federal wetland conservation easements (see Exhibit B), including easements consistent with the Central Valley Joint Venture Implementation Plan (see Exhibit C). The Bypass also contains giant garter snake and Swainson's hawk easements purchased by the Yolo Habitat Conservancy, the California Department of Water Resources, and the Wildlife Conservation Board.

Response

The commenter is providing background information on existing habitat conservation efforts within the Yolo Bypass. The comment does not address the adequacy or accuracy of the environmental document. No additional response is necessary.

Comment NG04-3**Comment**

Background on stakeholder outreach efforts. The Yolo Basin Foundation is uniquely qualified to comment on this EIS/EIR and work with the state and federal government to craft solutions to issues identified in this letter because of our history of stakeholder outreach in the Yolo Bypass. The Yolo Basin Foundation coordinates with stakeholders through the Yolo Bypass Working Group (see Exhibit L) and has long led efforts to provide input into the development of the Yolo Bypass Salmonid Project. This participation resulted in partnerships with Yolo County, farmers, wetlands managers, and the University of California, Davis to fill information gaps and propose new approaches for achieving the necessary balance between existing and new conservation goals.

Response

Reclamation and DWR appreciate the continued, long-term involvement of the Yolo Basin Foundation to help characterize impacts and benefits of actions that affect the Yolo Bypass.

Comment NG04-4**Comment**

Comments on the EIS/EIR analysis. The analyses of the impacts to recreation, education, and environmental justice in the EIS/EIR are unclear, vague, and not properly supported. The analysis also does not include impact conclusions for biological impacts to wetlands, including impacts on migratory and resident birds. In addition, some of the impact determinations are not supported by substantial evidence. In this letter and Attachment 1, the Yolo Basin Foundation provides comments to help improve the clarity and accuracy of the document. The Yolo Basin Foundation looks forward to working with the California Department of Water Resources and the U.S. Bureau of Reclamation to improve the analysis and develop a preferred alternative.

Response

Reclamation and DWR have used the best available science and information to analyze all resources in the EIS/EIR. Responses have been provided to all detailed comments in the submitted comment letter. Where applicable, Reclamation and DWR have revised the Draft EIS/EIR to clarify the analysis and respond to comments. Reclamation and DWR will consider the comments on the environmental impacts of the alternatives received on the Draft EIS/EIR when making a decision on the alternative to implement. Reclamation and DWR are committed to meaningful stakeholder involvement and appreciate thoughts and feedback on the alternatives, but the final decision on the alternative to implement will be made by Reclamation and DWR.

Comment NG04-5

Comment

Proposed Mitigation Measures. The Yolo Basin Foundation recognizes there will be some impacts on wetlands and existing educational programs as a result of the Yolo Bypass Salmonid Project and further recognizes the need to provide habitat for threatened and endangered fish species in the Yolo Bypass. As a result of our long history of involvement in Yolo Bypass conservation efforts, our leadership in stakeholder coordination, and our dedicated participation in public forums related to development of the Yolo Bypass Salmonid Project alternatives (see Exhibit H), the Yolo Basin Foundation asks for a leadership role in helping the California Department of Water Resources and the U.S. Bureau of Reclamation develop a preferred alternative. This letter also outlines potential and specific opportunities to mitigate for impacts from the proposed project on terrestrial species habitat in the Wildlife Area.

Response

See Response to Comment NG04-4 regarding selection of a preferred alternative and stakeholder input. The responses to subsequent comments provide more information about mitigation measure suggestions.

Comment NG04-6

Comment

BACKGROUND ON EXISTING YOLO BYPASS CONSERVATION

Yolo Bypass is home to the Yolo Bypass Wildlife Area and is habitat for countless terrestrial species, including rare, threatened, and endangered terrestrial species prioritized for conservation by the Yolo Habitat Conservancy, the California Department of Fish and Wildlife, and the U.S. Fish and Wildlife Service through the Yolo Habitat Conservation Plan and Natural Community Conservation Plan. The Yolo Bypass is a key component of habitat restoration planned as part of prior largescale state conservation efforts (e.g. CALFED Ecosystem Restoration Program) and is a vital element of the Central Valley Habitat Joint Venture's habitat restoration goals associated with implementation of the North American Waterfowl Management Plan (see Exhibit D) and the United States' international commitment to the 1918 Migratory Bird Treaty Act (see Exhibit E).

The state and federal government has invested millions of dollars in grant funding to support the construction and management of wetlands in the Yolo Bypass (see Exhibit F). These funds are from the federal North American Wetlands Conservation Act (see Exhibit G), an act passed in part to support activities under the North American Waterfowl Management Plan and to create the infrastructure to manage wetland ecosystems in the Yolo Bypass; and, in the U.S. Fish and Wildlife (wetlands conservation easements on Swanston Ranch north of I-80 and south of the Wildlife Area) and the Natural Resources Conservation Services' wetland conservation easements (Exhibit G). This funding supported the conservation of wetlands and associated upland habitats for waterfowl and other migratory birds in North America. The agencies must recognize these easements require landowners to manage for wetlands habitat in perpetuity.

Response

Commenter is providing background information on existing habitat conservation efforts within the Yolo Bypass. Comment does not address the adequacy or accuracy of the environmental document. No additional response is necessary.

Comment NG04-7**Comment**

The 16,800-acre Wildlife Area is a critical part of the history of partnerships to create terrestrial species habitat in the Yolo Bypass. Local citizens and elected officials started plans to develop the Wildlife Area in the 1980s, eventually succeeding in securing a \$4.75 million Wildlife Conservation Board grant to purchase the initial 3,700 acres. Interior Secretary Bruce Babbitt spoke at the groundbreaking ceremony of the new wetlands project in 1995 and President Bill Clinton dedicated the Wildlife Area in 1997. In 2001, the Nature Conservancy helped facilitate another \$16 million grant to add 12,000 acres to the Wildlife Area. The state then secured an additional \$8 million in federal NAWCA funds to implement restoration projects on these new acres. In addition to providing a significant link in the chain of wetlands that comprise the Pacific Flyway for migrating birds, the Wildlife Area is home to pockets of riparian forests, uplands, vernal pools, and wildlife-friendly agriculture (Exhibit F). Agricultural and grazing lease revenue provides \$600,000 annually in funding for Wildlife Area management and public access, as well as implementation of a successful adaptive management program.

Response

Commenter is providing background information on the Yolo Bypass Wildlife Area. Comment does not address the adequacy or accuracy of the environmental document. No additional response is necessary.

Comment NG04-8**Comment**

The Yolo Basin Foundation complements the Wildlife Area's amenities by offering its signature "Discover the Flyway" education program to over 70,000 K-12 school children since 1997. As a result of decades of demonstrated success, the Wildlife Area is considered a national model of sustainability, illustrating that flood protection, agriculture, wildlife habitat and public use can cooperatively exist in close proximity to a large metropolitan area.

Response

Commenter is providing background information on the Yolo Bypass Wildlife Area. The comment does not address the adequacy or accuracy of the EIS/EIR; therefore, no additional response is warranted.

Comment NG04-9

Comment

BACKGROUND ON STAKEHOLDER OUTREACH EFFORTS

Yolo Basin Foundation looks forward to building on our long history of coordinating with local stakeholders to work with the state and federal government to provide input into development of the Yolo Bypass Salmonid Project preferred alternative. Throughout the history of proposals to modify the Fremont Weir to increase the frequency and duration of flooding for fish habitat, the Yolo Basin Foundation has consistently provided comments, participated in public forums, identified opportunities for analytical improvements based on on-the-ground information, and worked to find positive solutions. The Yolo Basin Foundation has also maintained strong relationships with the farmers, ranchers, and wetlands managers who intimately know the Yolo Bypass, as well as local government staff, elected officials, state and local Farm Bureau representatives, and other stakeholders in Yolo County and Solano County.

Response

Reclamation and DWR appreciate the continued, long-term involvement of the Yolo Basin Foundation to help characterize impacts and benefits of actions that affect the Yolo Bypass.

Comment NG04-10

Comment

The Yolo Basin Foundation's participation in stakeholder forums related to the proposed Fremont Weir modification, originally proposed by the CALFED Bay-Delta Authority, dates back to the first meeting of the Yolo Bypass Working Group in 1999 (Exhibit L). The Yolo Basin Foundation and other stakeholders involved with the development of the Wildlife Area realized the proposal to modify the Fremont Weir would have an adverse impact on the goals described in the Wildlife Area Land Management Plan (hereafter LMP), a long-term management plan developed in coordination with local stakeholders¹. As a result of stakeholder advocacy, the California Department of Fish and Wildlife committed to work with CALFED to minimize the impacts on the Wildlife Area of the proposed project:

“This LMP represents the commitment of DFG to manage the resources of the Yolo Bypass Wildlife Area...[it] proposes practical, science-based management and conservation of the natural resources, consistent with the necessary flood water conveyance purpose of the Bypass, including provisions for compatible agriculture and public recreation use. It is based on an ecosystem approach to habitat management consistent with the principles of the Ecosystem Restoration Program (ERP) included in the CALFED Bay-Delta Program (CALFED) as implemented by the California Bay-Delta Authority (CBDA) and DFG.” (2008, p 1-6).

Since the inaugural meeting in 1999, the Working Group raised concerns about impacts to managed wetlands and agriculture at many of the next 46 meetings (Exhibit L). The Yolo Basin has also commented numerous times on this and similar projects since 2008 (Exhibit H).

Footnote 1: 2008. Yolo Bypass Wildlife Area Land Management Plan. California Department of Fish and Game & Yolo Basin Foundation.

Response

Reclamation and DWR appreciate the continued, long-term involvement of the Yolo Basin Foundation to help characterize impacts and benefits of actions that affect the Yolo Bypass.

Comment NG04-11

Comment

After the CALFED Bay-Delta Authority proposal stalled, the California Department of Water Resources included the project in the proposed Bay-Delta Conservation Plan in the mid-2000s as Conservation Measure 2. The Yolo Basin Foundation participated for over four years in meetings of the Yolo Bypass Fisheries Enhancement Planning Team to further discuss the proposal. Early on in these discussions, it became clear the California Department of Water Resources did not have the data necessary to complete an analysis for development of project alternatives. As a result of these discussions, the Yolo Basin Foundation proactively developed a partnership with Yolo County to help fill many identified information gaps, such as working with University of California, Davis economists to adopt the existing Bypass Production Model to analyze the agricultural impacts of project alternatives² and a review by Ducks Unlimited of potential impacts on waterfowl foraging habitat and hunting opportunities³.

Footnote 2: Howitt, R. et al. 2013. Agricultural and Economic Impacts of Yolo Bypass Fish Habitat Proposals. Yolo County.

Footnote 3: Petrik, K. et al. 2012. Waterfowl Impacts of the Proposed Conservation Measure 2 for the Yolo Bypass: An Effects Analysis Tool. Bay Delta Conservation Plan – Yolo Bypass Fisheries Enhancement Planning Team.

Response

Reclamation and DWR have continued use of the tools described in this comment. The Bypass Production Model was applied to the action alternatives to help characterize impacts to agricultural uses in the Yolo Bypass, and the Ducks Unlimited tools were updated to characterize impacts to waterfowl. The results of these studies are included in the EIS/EIR.

Comment NG04-12

Comment

After the state and federal government transitioned the Bay-Delta Conservation Plan into California Water Fix and California EcoRestore, the Yolo Bypass Fisheries Enhancement Planning Team ceased to meet and was replaced by a series of stakeholder meetings associated with implementation of the Yolo Bypass Salmonid Project. These meetings included the U.S. Bureau of Reclamation's Value Planning Exercise, the locally-led Post Value Planning Team, the Locally Preferred Alternative stakeholder group, and the Yolo Bypass Biological Opinion

Working Group. Also, during this time, the Yolo Basin Foundation worked with Yolo County to develop the Yolo Bypass Drainage and Water Infrastructure Improvement Study⁴, which identified 12 priority projects to improve drainage and water infrastructure to benefit agricultural production and wetlands management in the Bypass. More information is available in Exhibit I regarding the timing and extent of Yolo Basin Foundation involvement in different iterations of this Yolo Bypass Salmonid Project.

Footnote 4: Bowles, C. et al. 2014. Yolo Bypass Drainage and Water Infrastructure Improvement Study. Yolo County.

Response

As described in Appendix A, the stakeholder groups associated with this project had a key role in alternatives development. Additionally, feedback from stakeholders helped characterize potential environmental impacts, as included in the EIS/EIR.

Comment NG04-13

Comment

EIS/EIR ANALYSIS QUESTIONS AND COMMENTS

The Yolo Basin Foundation highlights the most significant comments on the EIS/EIR in this letter but has also compiled a detailed document with specific comments on the EIS/EIR and references to additional exhibits in Attachment 1. The Yolo Basin Foundation believes the analysis of impacts to managed wetlands, recreation, education, and environmental justice is inadequate and incomplete. In addition, the EIS/EIR lacks impact conclusions related to the impacts on migratory and resident birds (including food supply and nesting habitat), education, wildlife viewing, hunting, increased operations and maintenance activities due to additional flooding, and increased sedimentation. In addition, the impact conclusions are not supported by substantial evidence. We look forward to helping the state and federal government improve the analysis.

Response

This appendix provides responses to all comments submitted on the Draft EIS/EIR. Comment letters are provided in Appendix N.

Comment NG04-14

Comment

The Yolo Basin Foundation agrees with the following findings in the EIS/EIR:

- Impact HAZ-8: Risk of exposure to mosquito-borne viruses could increase as a result of inundation period expansion in the Yolo Bypass for fish passage and rearing
- Impact EJ-4: Project actions would reduce educational opportunities offered in the Yolo Bypass Wildlife Area for low-income students

- Impacts associated with methylmercury in the Yolo Bypass are expected to be a cumulatively significant impact, and the increased inundation from the Project would be cumulatively considerable

Response

Commenter is agreeing with several impact conclusions. No additional response is necessary.

Comment NG04-15

Comment

The Yolo Basin Foundation also urges the California Department of Water Resources and the Bureau of Reclamation to further analyze the Sutter Bypass as a location for floodplain habitat. The California Department of Water Resources and the Bureau of Reclamation rejected this alternative in 2014 in part because the Reasonable and Prudent Alternative in the Biological Opinion required the development of Yolo Bypass fish passage improvements, regardless of the location of floodplain habitat⁵. The agencies at the time proposed to combine Yolo Bypass fish passage and floodplain habitat improvements into a single project. A couple of years later, the Bureau of Reclamation and the Department of Water Resources decided to separate these two projects. Now that they are separate, the agencies should again evaluate the Sutter Bypass as an appropriate location for floodplain habitat to benefit threatened and endangered fish species.

Footnote 5: Yates, G. et al. 2002. Habitat Improvement for Native Fish in the Yolo Bypass. CALFED Bay-Delta Program.

Response

Chapter 2 and Appendix A document the consideration of alternatives within the Sutter Bypass and the reasons that they were not carried forward for further evaluation. While some fish passage projects (with independent utility) are moving forward separately from this effort, the gated notch included in the action alternatives would be the main avenue for fish passage through the Fremont Weir. If the inundation effort were to proceed in the Sutter Bypass, additional fish passage projects would be needed within the Sutter Bypass to address new or additional fish passage concerns as well as in the Yolo Bypass to satisfy RPA Action I.7 from the NMFS BO.

Comment NG04-16

Comment

The Yolo Basin Foundation has identified a number of serious deficiencies in the analysis, described below.

General

5. Failure to analyze entire project. The EIS/EIR fails to adequately analyze the impacts from operations of the proposed project downstream of Ag Crossing #1. There is a significant amount of analysis regarding construction impacts, but insufficient analysis of long-term

project operational impacts associated with additional flooding. These impacts include the increase in operation and maintenance costs and related activities a result of additional flooding, increased sedimentation impacts to both farmers and wetlands managers, impacts to movement of wildlife, impacts to nesting and foraging bird habitat, impacts to wetlands management, and impact of revenue needed to sustain habitat management and other operations of the Wildlife Area from potential loss of lease revenue.

Response

See Response to LA03-59 for impacts related to O&M and Response to Comment LA03-21 for impacts to wetlands.

Operations effects on the movement of native resident or migratory wildlife species are addressed in Chapter 9 under Impact-TERR-10. As indicated in Section 9.3.3.2.10, “Operations may prove beneficial for movement of some wildlife species, such as amphibians and reptiles, including giant garter snake or western pond turtle, because these activities would enhance downstream connectivity to Tule Canal. In addition, the channeling of water into the eastern transport channel would provide the same beneficial effect that existing scour ponds provide on the movement of resident and migratory terrestrial wildlife, such as mammals or birds, by providing a water source adjacent to existing foraging habitat. The changes in the expected average number of wet days resulting from operations are not expected to adversely affect wildlife movement because different areas within the Yolo Bypass would experience differential effects (i.e., some areas would have a reduced number of wet days and some areas would have an increased number of wet days), and wildlife can move around to adapt to such environmental changes.” The project improves fish movement both upstream and downstream of the project area. The project facilities and project operations do not create barriers to wildlife movement.

Comment NG04-17

Comment

1. Impact TERR-5: Potential disturbance or mortality of nesting bird species and loss of suitable nesting and foraging habitat (p. 9-69). The determination that the impact on nesting and foraging habitat from operations is less than significant is not supported by substantial evidence. The only language in the EIS/EIR is as follows: “Under Alternative 1, the Lead Agencies do not expect operations to result in adverse effects on suitable nesting habitat for special-status bird species because operations would extend the duration of inundation only between November and March, which is outside of the nesting season. Operational effects on foraging habitat may vary by species based on the effects of inundation on their prey. The small expected change in average number of wet days under Alternative 1 may reduce foraging habitat for some species, particularly in the eastern part of the Yolo Bypass; however, the effects on foraging habitat are not expected to be substantial.”

The Yolo Basin Foundation has repeatedly described the potential impacts to nesting and foraging habitat in the Wildlife Area from increased frequency and duration of flooding since 2008⁶, such as reduced food supply. The LMP, for example, acknowledges flooding constrains management of the Wildlife Area’s biological resources: “These constraints

include: adverse effects of spring flooding on management and operations, wildlife nesting, and farming” (p. 5-6).

Nesting in the Yolo Bypass could start as early as February. In addition, inundation later than the date the California Department of Fish and Wildlife would normally drain the wetlands increases production of invasive weeds and decreases production of favored waterfowl foods. There is no analysis referenced in the EIS/EIR to support the statements above. Additional analysis is required to evaluate the impacts on nesting and foraging habitat.

Footnote 6: 2008. Yolo Bypass Wildlife Area Land Management Plan. California Department of Fish and Game & Yolo Basin Foundation.

Response

See Responses to Comments SA01-57, LA03-21, LA03-118. The spatial distribution of the additional flooding areas is also variable. Small mammals are the main component of Swainson’s hawk and northern harrier diet during the breeding season. Given that small mammal populations recover relatively quickly (approximately one year) after flooding, the anticipated variation in temporal and special inundation patterns allow for prey population recovery between inundation events. Additionally, white-tailed kite, Swainson’s hawk and loggerhead shrike can take advantage of a wide variety of prey including insects, amphibians, reptile, birds and small mammals. The EIS/EIR has adequately assessed the effects including disclosure of the significance of the effects under CEQA.

Comment NG04-18

Comment

2. Impact TERR-9: Potential effects on USACE, RWQCB, and CDFW jurisdictional wetlands, waters, and riparian areas (p. 9-76). The EIS/EIR analyzes construction impacts on wetland and riparian areas, but fails to analyze the impact of operations. The EIS/EIR states only: “Under Alternative 1, operations would not result in adverse effects on areas subject to USACE and CDFW jurisdiction as no fill materials would be placed in waters during operations.” (p. 9-81)

The EIS/EIR fails to analyze the impact of additional flooding from the proposed project on USACE, RWQCB, and CDFW jurisdictional wetlands.

Response

See Response to Comment LA03-21.

Comment NG04-19

Comment

1. Calculation of 2% reduction in days available for educational programs and activities is not properly supported. The analysis states the project will result in a 2% reduction in

educational days and therefore there will not be an elimination or substantial reduction in the educational uses of the Wildlife Area (e.g. Table 13-4, Page 13-27). This analysis is not properly supported. There is no reference to an appendix showing the source of the calculations. According to email communication with agency staff, the Wildlife Area closure was estimated based on the number of additional days the water level at Lisbon Weir is higher than 12 feet, which is an indicator of when the Wildlife Area typically has to close due to flooding. However, the Yolo Basin Foundation believes the Wildlife Area may have to close when the water level at Lisbon Weir is as low as eight feet. Through email communication, agency staff also provided a table not included in the EIS/EIR that shows the number of additional closure days resulting from the TUFLOW model for each of the 16 years modeled, based on 12 feet water elevation at the Lisbon Weir. The TUFLOW output ranged from 0-21 days of additional closure as a result of the project, with an average of 5.3 days. The Yolo Basin Foundation requests the following improvements to this analysis:

- Include the table showing the number of estimated closure days in the EIS/EIR. This information is helpful to the reader to understand the basis for the calculation.

Response

See Response to Comment SA01-4.

Comment NG04-20

Comment

Provide a range of potential closure dates based on a sensitivity analysis of TUFLOW model outputs. The TUFLOW model is based on a number of assumptions that Yolo County documented in their review of the model⁷, therefore the analysis should provide a range of estimated closure days for each year, not a point estimate for each year. The final estimate should provide a range of closure days, as well as the average number of closure days.

Footnote 7: Fleenor, W. 2015. Review of the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Hydrodynamic Modeling Draft Report. Center for Watershed Sciences, University of California, Davis.

Response

See Response to Comment SA01-4.

Comment NG04-21

Comment

Account for drainage time. The analysis does not take into account that the Wildlife Area will stay closed until the water has drained from the Wildlife Area. The addition of drainage time will increase the number of days the Wildlife Area is closed as a result of the project and should be included in the analysis of impacts.

Response

See Response to Comment PM09-1. Further, whether under existing conditions or each alternative, the drying time would be similar as the alternatives can increase the period of duration compared to existing conditions, which delays the drying time period but does not significantly change the drying time duration.

Comment NG04-22**Comment**

Account for time to dry. Once enough of the area has drained for roads to be accessible, the roads still need to dry out. The Yolo Basin Foundation believes that it takes at least a week to dry under the best of circumstances, such as warm weather and no rain. Next, CDFW personnel must perform required maintenance before public access is allowed. The time needed depends on the severity of the damage, usually related to the length of time flooded and the velocity of the flood water. If there is less than two weeks between spill events, then the area does not open at all until this whole process starts over. The Yolo Basin Foundation believes the addition of these factors to the analysis will double, if not triple, the number of estimated education days lost as a result of the project.

Response

See Response to Comment SA01-4. Further, whether under existing conditions or each alternative, the drying time would be largely driven by weather conditions following the inundation that are variable and unknown for this analysis. As a result, this analysis assumes the drying times would be similar for existing conditions and each alternative despite the delay in the drying time period under the alternatives.

Comment NG04-23**Comment**

Estimate of 4.1% reduction in hunting days is not properly supported. Similar to the estimate of lost education days, the estimate of lost hunting days is not properly supported. The analysis should include a table showing the lost days by year, sensitivity analysis, and include the additional days the Wildlife Area will remain closed to drain and dry out.

Response

See Responses to Comment SA01-4.

Comment NG04-24

Comment

Impact conclusions for education, wildlife viewing, and hunting days are lacking. The EIS/EIR should contain impact conclusions for the loss of education, wildlife viewing, and hunting days in the Wildlife Area, along with appropriate mitigation measures.

Response

See Response to Comment SA01-4.

Comment NG04-25

Comment

Failure to analyze increase in operation and maintenance costs. The project alternatives will all result in a significant increase in operations and maintenance activities on the Wildlife Area. The increase in frequency and duration of flooding will result in more staffing and equipment expense to remove flood deposited debris and repair damage to roads, supply and drainage ditches, signs, fences, and gates. An increase in flood frequency and duration will also mean additional expense to mow and disk invasive plants, including emergent vegetation to meet requirements of the Memorandum of Understanding between the California Department of Fish and Wildlife, the California Department of Water Resources, and the Central Valley Flood Protection Board (see Exhibit J).

Response

See Response to Comment LA03-59.

Comment NG04-26

Comment

Failure to analyze impacts on wildlife viewing. Although the Wildlife Area is open and used all year round, November to February is the peak wildlife viewing season. Additional closures as a result of the project will impact wildlife viewing, which should be analyzed in this EIS/EIR.

Response

See Response to Comment SA01-4.

Comment NG04-27

Comment

Comparison of new shallow floodplain habitat to existing wetlands habitat is not supported by substantial evidence. The EIS/EIR analysis assumption that the large areas of temporary shallow

water created when the Yolo Bypass drains after a flood event is the equivalent of existing managed floodplain habitat for waterfowl is incorrect (Impact TERR-9). While some birds may utilize the receding flood waters, the habitat created is not comparable to habitat values provided by managed wetlands in the Wildlife Area and on private lands. The seasonal wetlands in the Wildlife Area and on private wetlands (duck clubs) are intensively managed to provide food and cover for terrestrial species. The management regime for these wetlands is based on Best Management Practices developed over many years (see Exhibit K). Management activities include controlled fall flood up to maximize primary and secondary food production in time for the arrival of migratory birds traveling the Pacific Flyway. Drawdown in the spring is timed to maximize seed germination that will provide protein resources for migratory and residents birds. Early spring drawdown is important for controlling invasive species, such as cocklebur and sweet clover, that have no food value. Early spring drawdown is also important in preventing growth of emergent vegetation including tules and cattails that can impede the flow of floodwaters (Exhibit J). The timing of flood up and drawdown is also important in preventing mosquito larvae production.

Response

It is neither assumed nor stated that large areas of temporary shallow water created when the Yolo Bypass drains after a flood event is the equivalent of existing managed floodplain habitat for waterfowl. As shown in Appendix H5 (Figures 26-41) of the EIS/EIR, under Alternative 1, 7 out of the 16 modeled years (or 44 percent) show the last day wet in March-April (the desired timeframe mentioned for pond draining and the same as under existing conditions) and 4 out of the 16 modeled years (or 25 percent) under Alternative 1 show a small number of areas with a last day wet extending into May (which is the same as is shown under existing conditions). Of the five remaining modeled years, one shows a larger number of areas with a last day wet extending into May (which is the same as is shown under existing conditions) and four years show a last day wet in May-June (which is also the same as is shown under existing conditions). Thus, the vast majority of modeled years mimic the natural variation seen within the Yolo Bypass under existing conditions. There is only one year (2002) where there are more areas with the last day in April under Alternative 1 than under existing conditions. For all other years, the month in which the last day wet occurs is the same for Alternative 1 and existing conditions.

Comment NG04-28

Comment

Inaccurate assertion of benefits from food production (p. 8-112, p. 9-3). The EIS/EIR states the proposed alternatives all increase floodplain food production to benefit juvenile salmonids, and that this food could also be exported to the Delta. This conclusion is questionable. The predicted floodplain inundation would occur in December at the earliest under all proposed alternatives. By December 1, the majority of the floodplain is already inundated in the form of tens of thousands of acres of flooded rice fields and managed wetlands. (Managed wetlands are flooded up as early as September 1). As a result of this targeted Wildlife Area management, wetland food production is well underway at least one month before additional flooding would occur due to the six proposed alternatives. The Bureau of Reclamation and the Department of Water Resources should remove or caveat this conclusion of benefits in their analysis.

Response

The evaluation of wetted area with respect to primary and secondary production is a relative assessment under the alternatives compared to existing conditions.

Comment NG04-29

Comment

Analysis of reduction in educational opportunities for low-income students in the Yolo Bypass Wildlife Area is vague and general. The analysis uses the percent of Title 1 schools in the Davis Joint Unified School District and the Sacramento City Unified School District as a proxy for percent of low-income students who attend Wildlife Area field trips. The Yolo Basin Foundation can provide more accurate data (see Exhibit N). For the 2016-17 school year, for example, there were 181 Discover the Flyway field trips. Approximately 3,656 students and over 200 adults attended the field trips. This equals nearly 4,000 participants in Discover the Flyway field trips in 2016-17. On average, approximately 44% of the Discover the Flyway participants are low-income students from Title 1 schools, approximately 1,600 students in 2016-17. The Yolo Basin Foundation appreciates the conclusion that “disproportionately high or adverse effects to the educational opportunities offered in the YBWA on low-income students could occur due to increases in inundation in the YBWA” and offers potential mitigation measures in the next section.

Response

The analysis has been revised to include the Discover the Flyway 2016-2017 School year statistics provided by the Yolo Basin Foundation. To mitigate the reduction in educational opportunities in the YBWA, the evaluation has been updated to include the following mitigation measure (NEPA only): Reclamation and DWR will make fish passage facilities available for field trips. This mitigation measure would reduce the impacts on low-income students due to reduced educational opportunities offered in the YBWA by providing an alternative field trip site.

Comment NG04-30

Comment

PROPOSED MITIGATION MEASURES

Improving rearing habitat for juvenile salmonids and passage for adult winter, spring and fall run Chinook salmon, steelhead and green sturgeon is an urgent need. The Yolo Basin Foundation has long recognized this need, as demonstrated by Foundation staff participation in discussions regarding increased juvenile floodplain habitat in the Yolo Bypass since the 1990s and staff participation in development of the Putah Creek Accord. All six project alternatives define the end date of project operations as either March 7th or March 15th as a result of robust stakeholder discussions and stakeholder sponsored studies. This illustrates the importance of stakeholder input and the potential for developing alternatives with local support. Yolo Basin Foundation believes there is a sustainable and successful mix of project actions and mitigation measures that

will provide both benefits to fish and continue the conservation work already underway for terrestrial species in the Wildlife Area. To begin the discussion, we recommend the mitigation measures briefly described in the following section to mitigate for the impacts on operations and maintenance in the Wildlife Area, education, and recreation, including wildlife viewing and hunting. Many of the proposed actions are described in the Yolo Bypass Wildlife Area LMP (see Exhibit M) Chapter 5, Section 5.2.4 beginning on Page 5-32.

Response

This is an introductory paragraph. Specific responses are given to each of the comments below.

Comment NG04-31

Comment

The analysis fails to include feasible mitigation measures for the following identified impacts:

- Impact TERR-5: Potential disturbance or mortality of nesting bird species and loss of suitable nesting and foraging habitat

Response

See Response to Comment LA03-117.

Comment NG04-32

Comment

The analysis fails to include feasible mitigation measures for the following identified impacts:

- Impact TERR-9: Potential effects on USACE, RWQCB, and CDFW jurisdictional wetlands, waters, and riparian areas

Response

See Response to Comment LA03-117.

Comment NG04-33

Comment

The analysis fails to include feasible mitigation measures for the following identified impacts:

- Impact EJ-4: Project actions could reduce educational opportunities offered in the YBWA on low-income students

Response

The evaluation has been updated to include the following mitigation measure (NEPA only): Reclamation and DWR will make fish passage facilities available for field trips. This mitigation measure would reduce the impacts on low-income students due to reduced educational opportunities offered in the YBWA by providing an alternative field trip site.

Comment NG04-34

Comment

The analysis fails to include feasible mitigation measures for the following identified impacts:

- Reduction in education days (Yolo Basin Foundation requests an impact conclusion)

Response

The recreation analysis has been updated to include a CEQA impact statement and conclusion for the loss of recreational opportunities due to a reduction in access and/or lands available for education. However, these social impacts are evaluated compared to the CEQA thresholds of significance (see Chapter 13, Section 13.3.2 for these thresholds), which are focused on physical impacts (not social impacts). Therefore, these impacts would be less than significant and do not require mitigation measures under CEQA. Of relevance, see Response to Comment NG04-33 as part of the environmental justice evaluation (Chapter 24) that addresses educational impacts.

Comment NG04-35

Comment

The analysis fails to include feasible mitigation measures for the following identified impacts:

- Reduction in hunting days (Yolo Basin Foundation requests an impact conclusion)

Response

See Response to Comment SA01-4.

Comment NG04-36

Comment

The analysis fails to include feasible mitigation measures for the following identified impacts:

- Reduction in wildlife viewing days (Yolo Basin Foundation requests an impact conclusion)

Response

See Response to Comment SA01-4.

Comment NG04-37**Comment**

The analysis fails to include feasible mitigation measures for the following identified impacts:

- Impacts associated with methylmercury in the Yolo Bypass are expected to be a cumulatively significant impact, and the increased inundation from the Project would be cumulatively considerable

Response

See Responses to Comments FA01-4 and FA01-5.

Comment NG04-38**Comment**

The Yolo Basin Foundation suggests the following mitigation measures to include for the impacts listed above. In addition, the Yolo Basin Foundation supports the efforts of Yolo County to ensure farming will continue in the Yolo Bypass, including economic mitigation for loss of yield from late flooding and other impacts. Wildlife friendly agriculture is a critical element of the habitat provided in the Yolo Bypass Wildlife Area.

Response

Specific mitigation measures are discussed below. See also Master Response 4: Impacts to Landowners and other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment NG04-39**Comment**

Develop additional wetlands to offset those that will be inundated more often due to proposed project. The Yolo Basin Foundation can work with the California Department of Fish and Wildlife to identify potential projects, such as wetland habitat restoration outside the Bypass in partnership with DWR, CDFW, City of Davis, Yolo Habitat Conservancy, Yolo Land Trust, and others. This mitigation measure will help address impacts identified in Impact TERR-5 and TERR-9 because it will provide additional wetlands and more nesting and foraging habitat, as well as Impact EJ-4 because it will provide areas to visit with low-income children outside of the Yolo Bypass.

Response

As noted in Responses to Comments SA01-57 and LA03-21, as visible in modeling results over a 16-year period (Figures 26-41 Appendix H5 of the EIS/EIR), increases of more than two weeks

in the duration of inundation (as indicated by last wet day) vary from year to year as well as in spatial distribution. As a result, few locations within the Yolo Bypass, if any, exhibit repeated increases in duration of inundation. Those locations that do exhibit multiple increases in inundation duration of greater than two weeks, exhibit that condition in only one out of five years. This is not a sufficient frequency to result in a shift of non-wetland to wetland or, conversely, wetland to non-wetland. Therefore, no additional mitigation is proposed.

Comment NG04-40

Comment

Increase in maintenance and operations funding to CDFW for the Yolo Bypass Wildlife Area. Due to the increase in frequency and duration of flooding, the following will occur in the Wildlife Area: increased sediment deposition, road damage, loss of road gravel, flood debris removal, replacement/repair of signs, invasive weed removal, increase in mosquito control costs, and damage to gates and fences. Project proponents should provide CDFW with additional staffing, funding, and equipment for operations and maintenance. This mitigation measure will help address the impacts in TERR-9.

Response

See Master Response 4: Impacts to Landowners and other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment NG04-41

Comment

Maintain and improve public use. Improve the current wildlife viewing loop, including development of interpretive and directional signage and facilities, viewing blinds, board walks, and platforms (Refer to Yolo Bypass Wildlife Area LMP Page 5-32). This mitigation measure will address the loss of education and wildlife viewing days.

Response

See Response to Comment SA01-4.

Comment NG04-42

Comment

Develop new public access for wildlife viewing. The Yolo Basin Foundation can work with project proponents to identify new public access opportunities for wildlife viewing, such as: 1) access to Tule Ranch with westside public access south of Putah Creek; 2) a new public viewing loop using Tule Ranch wetlands (refer to Exhibit M: Yolo Bypass Wildlife Area LMP Page 5-35); improve trail designations and maintenance (Exhibit M: Yolo Bypass Wildlife Area LMP

Page 5-36); and 3) improve physical separation of wildlife viewing and hunting by creating new, westside hunter check station on Tule Ranch. This mitigation measure will address the loss of wildlife viewing days.

Response

See Response to Comment SA01-4.

Comment NG04-43**Comment**

Improve current hunting program. Project proponents could improve the current hunting program by: 1) providing westside access for hunting on higher areas that may not flood as frequently due to Fremont Weir modification for more frequent and longer duration of flooding; 2) moving hunter access to the Tule Ranch by creating new, westside hunter check station on Tule Ranch (refer to Yolo Bypass Wildlife Area LMP Page 5-35); and 3) provide additional hunting area outside the Yolo Bypass. This mitigation measure will help address the loss of hunting days.

Response

See Response to Comment SA01-4.

Comment NG04-44**Comment**

Implement remaining recommendations in the Yolo Bypass Drainage and Water Infrastructure Improvement study. These projects include the Parker United water supply project, water supply for wetlands south of the umbrella barn, and improvements to the South Davis Drain. In addition to reducing the time the Wildlife Area stays closed because of improved drainage times, some of these projects will also increase wetlands acreage. This mitigation measure addresses the impacts of a reduction in education days, wildlife viewing days, and hunting days, as well as Impact EJ-4.

Response

See Response to Comment SA01-4.

Comment NG04-45**Comment**

Develop an Adaptive Management Plan for the proposed project. The Adaptive Management Plan should include wetlands and public use elements in the Wildlife Area, not just operation of gates and canals associated with the Fremont Weir modification.

Response

The main focus of the adaptive management plan is to identify and implement modifications that would improve the ability of the project to meet the purpose and need/project objectives. Reclamation and DWR are committed to avoiding impacts to wetlands and the public use elements during implementation of adaptive management procedures, but these elements are not the main focus of this project and not part of the Adaptive Management Plan.

Comment NG04-46

Comment

Implement and fund methylmercury Best Management Practices. Project proponents should develop a cost share agreement with CDFW and private landowners on implementation of Methylmercury BMPs to meet Bay-Delta Methylmercury TMDL future requirements. This is proposed as a mitigation measure for cumulatively significant impacts associated with methylmercury. Thank you for the opportunity to comment. The Yolo Basin Foundation looks forward to working with you to identify a preferred alternative and identify opportunities to improve wildlife habitat, educational and recreational opportunities in the Yolo Bypass Wildlife Area.

Response

Meeting the Bay-Delta Methylmercury TMDL future requirements is a separate effort. DWR will work to implement those requirements, and they do not need to be included as mitigation measures for this project. See Response to Comment FA01-4.

Comment NG04-47

Comment

ATTACHMENT 1:

Executive Summary, ES-7, PAGE 17-18

Issues of controversy that are not listed in current draft, include: grazing, operations and maintenance on YBWA, education access, hunting & wildlife viewing access, impacts to existing wetland habitat, impacts to CVJV Implementation Plans, impacts to state and federal wetland conservation easements in the Yolo Bypass.

Refer to Exhibits B, H & L: Planning Team mtgs.; YBF mtgs. w/ agency staff; Yolo County Board of Supervisors mtgs.; YB Bi-ops Working Group Mtgs.; Value Planning Exercise; Conservation Easements map

Response

Sections ES.7 and 1.6 have been updated to include these additional concerns.

Comment NG04-48**Comment**

ATTACHMENT 1:

Executive Summary, Table ES-2, Page ES 34-35

Impact TERR-3: GGS impact - Would there be impacts to GGS in YBWA? This is not discussed in draft.

Response

See Response to Comment LA03-119.

Comment NG04-49**Comment**

ATTACHMENT 1:

Executive Summary, Table ES-2, Page ES 36-37

Impact TERR-5: Nesting bird species impact - More spring flooding could impact growth quality of spring nesting habitat but this is not discussed in draft for construction impacts. There will also be impacts for nesting habitat on the YBWA due to long term project operations.

Response

See Response to Comment NG04-17. Modeling results over a 16-year period (Figures 26-41 Appendix H5 of the EIS/EIR) show increases of more than two weeks in the duration of inundation (as indicated by last wet day) vary from year to year as well as in spatial distribution. As a result, few locations within the Yolo Bypass, if any, exhibit repeated increases in duration of inundation. Those locations that do exhibit multiple increases in inundation duration of greater than two weeks, exhibit that condition in only one out of five years. This is not a sufficient frequency to result in a significant change in nesting habitat quality. As indicated in Section 9.3.3.2, vegetation maintenance will be conducted on an annual basis and could result in significant impacts to nesting birds if it resulted in a direct take of a migratory bird or nest. Therefore, MM TERR-16 is proposed to mitigate for this potential. Please note that ongoing maintenance in the Yolo Bypass for flood control management is not a component of this project. As indicated in Section 9.3.3.2.9, the permanent loss of riparian habitat due to the construction of the project facilities described herein will be fully mitigated. Maintenance activities for this project would be limited to those same facilities. Additionally, as described in Section ES.1.13.3, grasses and woody vegetation would be allowed to remain in the channels unless it becomes an obstruction to flow within the passage channel. See also Response to Comment LA03-59.

Comment NG04-50

Comment

ATTACHMENT 1:

Executive Summary, Table ES-2, Page ES 39-40

Impact TERR-10: Interference with movement of native resident or migratory wildlife species. Draft doesn't acknowledge permanent impact of operations on YBWA, only describes the temporary impact at construction site.

Refer to Exhibit M: Page 4-1

Response

Please see Response to Comment NG04-16.

Comment NG04-51

Comment

ATTACHMENT 1:

Executive Summary, Table ES-2, Page ES 42

Impact AGR-2: Conversion of farmland - What are impacts of sedimentation below I-80 due to long term project operation?

Response

Impacts of sedimentation resulting from the long-term operation of the project are discussed in Chapter 12, *Geology and Soils*, under Impact GEO-1. In short, approximately 25 percent of sediments are expected to settle on agricultural lands in the bypass downstream of Agricultural Road Crossing 1, including the bypass areas below I-80. Once dry, the sediment would be tilled into the ground during typical agricultural activities, and would not result in a substantial change in ground elevation. These actions would not change farmland designations or uses.

Comment NG04-52

Comment

ATTACHMENT 1:

Executive Summary, Table ES-2, Page ES 50

Impact HAZ-8: Mosquito-borne virus risk - What analysis was used to analyze this impact finding of LTS?

Response

Chapter 19, *Hazardous Materials and Health and Safety*, describes the various diseases that are spread by mosquitos under existing conditions section and also describes services available in the project area from the Sacramento-Yolo Mosquito & Vector Control District's (MVCD). The Sacramento-Yolo MVCD has not been contacted; however, Impact HAZ-8 evaluates the potential increased risk of exposure to mosquito-borne viruses an increased period of inundation in the Yolo Bypass. Yolo Bypass wetland managers currently work with the Sacramento-Yolo MVCD to implement BMPs for biological control of mosquitos. Current activities would continue to help to control any increased risk during expanded inundation periods. The Sacramento-Yolo MVCD 's Integrated Pest Management website has been reviewed, as well as its Mosquito Reduction Best Management Practices document. The evaluation resulted in a less than significant effect because current activities to control mosquito-borne diseases would continue.

Comment NG04-53**Comment**

ATTACHMENT 1:

Executive Summary, Table ES-3, Page ES 54-55

Impact SOC-2: Economic impact - What analysis was used to specifically address loss of agriculture jobs on YBWA rice fields and grazing leases?

Response

As discussed in Section 16.3.1.2 in Chapter 16, effects from cropland conversion were analyzed quantitatively and qualitatively.

Loss of jobs from conversion of rice fields was analyzed quantitatively using the Bypass Production Model (BPM) and IMPLAN modeling. The BPM was used to evaluate the agricultural economic impact resulting from changes in the frequency, duration, and timing of increased Yolo Bypass flooding under each of the Project alternatives. The average annual loss in output from the BPM was then input to IMPLAN as an industry change to determine the loss of agriculture jobs. Grazing lands and rice fields throughout the Yolo Bypass (including the YBWA) were included in this analysis.

Comment NG04-54**Comment**

ATTACHMENT 1:

Executive Summary, Table ES-3, Page ES 56

Impact EJ-4: Reduced educational opportunities to low-income students - CORRECTION: Percentage of Title 1 students served by YBF is 44%. Washington School District (West

Sacramento) also has Title I schools that participate in YBF school program. They should be part of analysis.

Refer to Exhibit N

Response

The analysis for Impact EJ-4 in Sections 22.3.3.2.4, 22.3.3.3.4, 22.3.3.4.4, 22.3.3.5.4, 22.3.3.6.4, and 22.3.3.7.4 has been revised to include the Discover the Flyway 2016-2017 school year statistics provided by the Yolo Basin Foundation.

Comment NG04-55

Comment

ATTACHMENT 1:

Executive Summary, Table ES-6, Page ES-58

Water Quality - Signification methylmercury impact should be mitigated through cost sharing research projects to develop BMPS and for implementation of BMPS on public and private land as required by MeHg TMDL.

Response

See Response to Comment FA01-4.

Comment NG04-56

Comment

ATTACHMENT 1:

Chapter 1, Figure 1-1, Page 1-7

Update project area map

Refer to Exhibits B & F

Response

Figure 1-1 is the project vicinity map and is intended to provide readers with the regional setting of the project. Figure 1-1 contains the same major recreation areas as indicated in Exhibits B and F. Other information provided in Exhibits B and F, including land uses and biological resources, are included in appropriate figures in Chapter 11, *Land Use and Agricultural Resources*, and Chapter 9, *Vegetation, Wetlands, and Wildlife Resources*.

Comment NG04-57**Comment**

ATTACHMENT 1:

Chapter 1, 1.6.2, Page 1-13

Issues of controversy that are not listed in current draft, include: grazing, operations and maintenance on YBWA, education access, hunting & wildlife viewing access, impacts to existing wetland habitat, impacts to CVJV Implementation Plans, impacts to state and federal wetland conservation easements in the Yolo Bypass.

Refer to Exhibits H & L: Scoping docs; YBWG meeting summaries. Additional items of controversy were discussed in: YBF and Yolo County scoping docs; YBWG meeting summaries; YB Fish Enhancement Planning Team mtgs.; YBF mtgs. w/ agency staff and Yolo County Board of Supervisors

Response

Sections ES.7, 1.6, and 23.9 have been updated to include these additional concerns.

Comment NG04-58**Comment**

ATTACHMENT 1:

Chapter 2, Table 2-3, Page 2-8

Sutter Bypass Alternative - What was the analysis used to assess acceptability? Does this imply that there is acceptability among Yolo Bypass stakeholders? How was this measured? YBF does not believe this effect was seriously analyzed.

Response

The acceptability concern that is described in Table 2-3 is related to expanding the Sutter Bypass by setting back a levee into farmland (that is not currently included within the Sutter Bypass). Taking agricultural land out of production was identified as a concern for acceptability, as described in the explanation of evaluation criteria. The alternatives that considered expansion to the Yolo Bypass (the Elkhorn Alternatives) had similar concerns about acceptability. Appendix A describes the consideration of initial alternatives in more detail.

Comment NG04-59**Comment**

ATTACHMENT 1:

Chapter 3, Table 3-2, Page 3-22

Sac-San Joaquin Delta Estuary TMDL for Methylmercury - SUGGESTED

MITIGATION: Water Quality - Signification methylmercury impact should be mitigated through cost sharing research projects to develop BMPS and for implementation of BMPS on public and private land as required by MeHg TMDL

Response

See Response to Comment FA01-4.

Comment NG04-60

Comment

ATTACHMENT 1:

Chapter 4, 4.1.2.5, Page 4-9

CORRECTION: Yolo Basin Wetlands is the name of the USACOE project that was completed in 1998. That project was on the original 3700 acres of the YBWA. In draft YBWA acreage is listed as 3,700 acres of wildlife habitat, but the YBWA was enlarged to 16,800 acres by a land purchase in 2001. Of the 16,800 acres, approximately 7,000 acres are managed wetlands.

Refer to Exhibit B

Response

Text modified according to comment.

Comment NG04-61

Comment

ATTACHMENT 1:

Chapter 4, 4.3.3.2, Page 4-24

Alt 1 "larger areas with the bypass would be inundated at low flows" However the draft EIR/EIS does not recognize this as either a CEQA or NEPA impact. Why not?

Response

The Draft EIS/EIR extensively evaluates effects of providing additional flows to inundate areas within the bypass both temporal and spatial. The comment fails to indicate what impact is not addressed by the Draft EIS/EIR.

Comment NG04-62

Comment

ATTACHMENT 1:

Chapter 4, Figure 4-6; Figure 4-12, Page 4-29; 4-56

The description of supplemental adult fish passage for all alternatives makes the assumption that 1,000 cfs flows will stay in Toe Drain and not cause impact yet these maps show otherwise. Please clarify whether or not the operation of supplemental adult fish passage under all alternatives would remain in the current Tule Canal/Toe Drain. Would it impact agriculture, grazing, education or recreation on the YBWA?

Response

Operations of the new gated notch for fish passage after March 15 (or March 7) would be constrained such that they would not cause flows out of the Tule Canal/Toe Drain. The flows through the gated notch after March 15 would be limited by the available capacity in Tule Canal at the point with the smallest capacity (between Agricultural Road Crossing 1 and just downstream of Interstate 5), as described in Appendix S. Additional evaluation of the frequency of available capacity has indicated that the capacity is typically about 200-300 cfs between March 16 and April 30. Chapter 2 of the EIS/EIR has been updated to clarify the amount of flow that could enter the Tule Canal and Toe Drain without exceeding the capacity of the channels during this period. Impacts to land use and agriculture are addressed in Chapter 11, impacts to recreation and education are addressed in Chapter 13.

Comment NG04-63

Comment

ATTACHMENT 1:

Chapter 4, Figure 4-6; Figure 4-12, Page 4-56

Same comment as above but pertaining to impacts of the Lower Elkhorn setback levee.

Response

Impacts to land use and agriculture are addressed in Chapter 11, impacts to recreation and education are addressed in Chapter 13. The Lower Elkhorn setback levee is a separate project and will be analyzed in a separate environmental document, although it has been identified and included in this EIS/EIR's discussion of cumulative impacts.

Comment NG04-64

Comment

ATTACHMENT 1:

Chapter 8, Impact Fish 13, Page 8-111

Is the impact to terrestrial species of increased methylation of mercury recognize elsewhere in the document? Where?

Refer to Exhibit M: Pages ES-5-6; 3.1-7; 3.4- 33 5-53.

Response

The Lead Agencies recognize that the bioaccumulation of methylmercury can lead to negative reproductive and behavioral effects on fish-eating birds and mammals (Sams 2007). Potential impacts of methylmercury on higher order predators is addressed in Section 6.1.3.1.1 which indicates that “when consumed (e.g., with a meal of seafood), about 95 percent of MeHg is absorbed from the gastrointestinal tract into the blood stream and is rapidly distributed to other parts of the body. MeHg that enters the brain and/or crosses the placenta into a developing child is of greatest concern. Ecologically, a similar concern arises for MeHg in the brain of predators and/or in developing offspring in utero or in eggs.” However, Section 8.3.3.1.2 indicates that for juvenile Chinook salmon rearing in the Yolo Bypass, increased concentrations of accumulated methylmercury were reported to be insignificant in the tissues of the eventual adult-sized fish (Henery et al. 2010)” while acknowledging that impacts on resident fish may be greater. Based on studies in reporting in Section 6.1.3.1.1, non-lethal neurological effects might occur when fish tissue concentrations exceed 0.1 to 0.3 ng MeHg/g [0.0001 to 0.0003 mg/kg](wet weight) (Beckvar 2005, Dupew et al. 2012, Eagle-Smith 2016, Niime and Kissoon 1994). Juvenile salmon from the bypass recently showed MeHg concentrations in tissue 1/5th to 1/10th of these thresholds [0.00002 to 0.00003 mg/kg] (Henry et al. 2010). Based on the state-wide water quality standards, these concentrations are no more than 6/10,000ths of the Prey Fish Objective of 0.05 mg/kg (https://www.waterboards.ca.gov/water_issues/programs/mercury/docs/ca_hg_approval_letter_with_enclosures_signed_071417.pdf). Therefore, Section 8 concludes that “based on higher mean monthly flows entering the Yolo Bypass, increased concentrations of methylmercury and other contaminants may occur in the Yolo Bypass and in the Delta. However, the potential for increased concentrations of contaminants is not expected to substantially affect fish species of focused evaluation.” The fish species evaluated included a broad range of families and sizes as well as including resident and migratory species. There are no special-status fish-eating mammals expected to occur within the Yolo Bypass, although there are several special-status birds that forage in the Yolo Bypass primarily for fish including the osprey, bald eagle and American white pelican. Methylmercury levels would have to increase many hundreds of times to exceed the standard and be considered a threat to osprey, bald eagle, or American white pelican.

Comment NG04-65**Comment**

ATTACHMENT 1:

Chapter 8, Impact Fish 14, Page 8-112

What is the net benefit to primary and secondary food production of increasing frequency and duration of flooding with this project? Most of the Yolo Bypass is already activated floodplain by Nov. 1 due to the summer flood up of rice fields and managed wetlands.

Refer to Exhibit O

Response

The evaluation of wetted area with respect to primary and secondary production is a relative assessment under the alternative compared to existing conditions.

Comment NG04-66

Comment

ATTACHMENT 1:

Chapter 8, 8.5.9.2, Page 320

Adaptive Management should be applied to assess long term operations activities on a real time basis to minimize impacts to wetlands, recreation, and education values on the YBWA.

Response

See Response to Comment NG04-45.

Comment NG04-67

Comment

ATTACHMENT 1:

Chapter 9, 9.1, Page 9.2

CORRECTION: Update YBWA acreage to 16,800 - Jones and Stokes 2001 is old reference. Include: list of sensitive special-status species, 7,000 acres of managed wetlands.

Refer to Exhibit B & M: pages 1-1; 1-8

Response

CDFW commented that the size is 16,600 acres, which is confirmed on their current website. The text has been updated to indicate that the YBWA is 16,600 acres and the CDFW reference was added to the sentence. Special-status species potentially occurring in the Yolo Bypass, including the Yolo Bypass Wildlife Area, are addressed in Section 9.1.2.

Comment NG04-68

Comment

ATTACHMENT 1:

Chapter 9, 9.1, Page 9.2

Correct error in first paragraph. "The west side of the south portion of the YB is bounded by the west bypass levee just south of Putah Creek..." This should say the NORTH side of Putah Creek.

Response

Text modified to reflect comment.

Comment NG04-69

Comment

ATTACHMENT 1:

Chapter 9, 9.1, Page 9.2

First line should be Fremont and Sacramento Weirs not weirs.

Response

The grammar rule is to not capitalize the name in the plural form. No change made.

Comment NG04-70

Comment

ATTACHMENT 1:

Chapter 9, 9.1, Page 9.2

CORRECTION: 4th paragraph states, "most of the land in the YB is farmed, with a smaller amount (located mainly in the southern portion of the YB)." This is incorrect: There are a much larger number of acres of managed wetlands south of I-80.

Response

Text has been modified to reflect comment.

Comment NG04-71

Comment

ATTACHMENT 1:

Chapter 9, 9.1, Page 9.3

QUESTION: Last paragraph "...migration route and spawning and rearing habitat for many sensitive special-status fish species endemic to the region..." What are these sensitive special-status fish species? Which of these species spawn in the YB?

Response

See Chapter 8, *Aquatic Resources and Fisheries*, Section 8.1.2.2.

Comment NG04-72**Comment**

ATTACHMENT 1:

Chapter 9, 9.1, Page 9.3

Second sentence. "As the floodwaters inundate and then recede, the YB also provides habitat for shorebirds, waterfowl, and terrestrial species." It should be added that the YB floodway is already an activated floodplain by the time the floodwaters arrive. YB is already covered by flooded rice fields and managed wetlands.

Refer to Exhibits K & O

Response

The text "As the floodwaters inundate and then recede" has been removed from the sentence to simply state "The Yolo Bypass also provides habitat for..."

Comment NG04-73**Comment**

ATTACHMENT 1:

Chapter 9, 9.1, Page 9.3

CORRECTION: Yolo Bypass described as terrace, this is incorrect. It is a basin created by natural levees created by overflow sediment from the Sacramento River. Also, managed shorebird habitat in the bypass is already present before inundation occurs, not just afterwards.

Response

Text has been modified to reflect comment.

Comment NG04-74**Comment**

ATTACHMENT 1:

Chapter 9, Table 9-2, Page 9-4

QUESTION: Why are detailed descriptions of vegetation communities in Yolo Bypass not provided in the EIS/EIR? What year are the data from?

CORRECTION: Managed annual wetland vegetation should be more than 4,743 acres. YBWA has 7,000 acres and there are thousands of acres of managed wetlands are private lands (duck clubs). Does the 51 acres of Vernal pool complex include the Tule Ranch vernal pools? Where are the 1,620 of managed alkali wetlands. Where are the 4,207 acres of salt grass flats. What are the 37,770 acres of Other. Where are they?

Response

As noted in Section 9.1.1, vegetation communities were derived from the Geographic Information Systems (GIS) information in the Fine-Scale Riparian Vegetation Mapping of the Central Valley Flood Protection Plan Area Final Report (CDFW 2013). Refer to Appendix H1 for the vegetation community mapping for the entire Yolo Bypass. As indicated in Table 9-2, the Other category (37,770 acres) includes the following: 31,731 acres of Agriculture, 31 acres of Barren, 1 acre of Eucalyptus Grove, 5,807 acres of Open Water, 31 acres of Ornamental, and 169 acres of Urban. These were lumped into Other because they did not fit into any of the other vegetation categories. These areas are shown on the vegetation map in Appendix H1.

Comment NG04-75

Comment

ATTACHMENT 1:

Chapter 9, 9.1.1.4.3, Page 9-11

Most of YBWA (7,000 acres of managed wetlands) were funded with N. American Wetlands Conservation Act grants matched by state funds - this is not mentioned in draft. YBF would like more description of management guidelines for wetlands at YBWA and for it to be noted that the same mgmt. approach is used on private wetlands in Yolo Bypass.

Refer to Exhibit M: Page 5-10

Response

Information regarding funding for YBWA managed wetlands was added. Overall management guidelines for the YBWA, including those that are not within the scope of terrestrial biological resources, are more appropriately discussed in the YBWA Land Management Plan, which is referenced in Section 9.2.2. The purpose of Section 9.1.1 is to describe the existing vegetation communities present in the study area.

Comment NG04-76

Comment

ATTACHMENT 1:

Chapter 9, Table 9-4, Page 9-19-25

CORRECTION: For special-status wildlife: on-going operations and not just construction, will be impacted in YBWA for Conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp and giant garter snake, sharp-shinned hawk, Cooper's hawk, tricolored blackbird, grasshopper sparrow, great egret, great blue heron, short-eared owl, burrowing owl, redhead, Swainson's hawk, black tern, northern harrier, California yellow warbler, snowy egret, white-tailed kite, California horned lark, merlin, prairie falcon, American peregrine falcon, least bittern, loggerhead shrike, California gull, song sparrow, long-billed curlew, black-crowned night-heron,

osprey, American white pelican, white-faced ibis, double-crested cormorant, least Bell's vireo, yellow-headed blackbird, pallid bat.

Response

Table 9-4 notes which species occur in the construction study area, which occur in the operations study area, and which occur in both. This is not an impact table, but an existing conditions table. Operations effects for these special-status species are addressed in the summary for each alternative (e.g., Section 9.3.3.2 for Alternative 1 discusses vernal pool crustaceans) as well as generally under impact categories for each alternative, including Impact TERR-3: Potential Disturbance or Mortality of and Loss of Suitable Habitat for Giant Garter Snake, Impact TERR-5: Potential Disturbance or Mortality of Nesting Bird Species and Loss of Suitable Nesting and Foraging Habitat, and Impact TERR-6: Potential Disturbance, Injury, or Mortality of Special-Status Tree-Roosting Bats and Removal of Roosting Habitat.

Comment NG04-77

Comment

ATTACHMENT 1:

Chapter 9, 9.1.4, Page 9-26

EIS/EIR does not mention that the Yolo Bypass in part of the Pacific Flyway as migratory bird corridor, nor does it include shorebird mudflat as sensitive habitat vegetation community in study area. YBF suggests including these in sensitive habitats.

Response

The following text was added to Section 9.1.3 (Wildlife Movement Corridors): "The Yolo Bypass serves as an important wildlife movement corridor that provides connectivity for resident and migratory wildlife throughout the region, including serving as part of the Pacific flyway for migratory birds." Shorebird mudflat is not an identified vegetation community in the operations study area (see Appendix H1). This habitat is likely included under one or more of the vegetation types in the freshwater emergent wetland or saline emergent wetland category.

Comment NG04-78

Comment

ATTACHMENT 1:

Chapter 9, 9.2.2, Page 9-32-36

In section 9.2.2 include Central Valley Joint Venture Implementation Plan.

Response

Text has been modified to reflect comment.

Comment NG04-79

Comment

ATTACHMENT 1:

Chapter 9, 9.3.1, Page 9-41

QUESTION: Why is only the part of the study area associated with construction impacts shown in this chapter? Why aren't impacts from long term project operations included?

Response

Construction impacts are easily quantifiable and presentable in the figures. Because the operations study area is the entirety of the Yolo Bypass and the extent of operations effects will vary from year to year, it is not possible to visually demonstrate operations effects on terrestrial biological resources in figures. However, where applicable, reference is made to other figures in the EIS/EIR, such as those included in Chapter 13, *Recreation*, Chapter 11, *Land Use and Agriculture Resources*, and Appendix H5, *Inundation Analysis for EIS/EIR Alternatives*.

Comment NG04-80

Comment

ATTACHMENT 1:

Chapter 9, 9.3.1, Page 9-42

CORRECTION: See second paragraph sentence: "For this analysis...." The No Action condition assumes there will be no anticipated changes to terrestrial biological resources for the future; however, this doesn't include more flooding from climate change? This is confusing, please clarify - is this referring to the CEQA or NEPA definition of existing conditions? Any impact to existing conditions due to climate change will change conditions for terrestrial species.

Response

Because the Yolo Bypass is a manipulated system due in part to active management for farming, waterfowl, recreation, etc., it is speculative to identify to what extent climate change may have an effect on future terrestrial biological conditions and difficult to quantify that response. Therefore, it is reasonable to use the same baseline for the future No Action as existing conditions.

Comment NG04-81

Comment

ATTACHMENT 1:

Chapter 9, 9.3.2, Page 9-43

Thresholds of significance: There is a potential for adverse effects on wetlands regulated under Section 404 of the CWA. There is also potential for interference with the movement of native resident or migratory wildlife species. QUESTION: Why are these two thresholds NOT addressed in the document under any of the alternatives?

Exhibits K & O

Response

Impact TERR-9 (Potential Effects on USACE, RWQCB, and CDFW Jurisdictional Wetlands, Waters, and Riparian Areas) and Impact TERR-10 (Potential Interference with Movement of Native Resident or Migratory Wildlife Species) address these impacts for each alternative. See also Responses to Comments LA03-21 and NG04-16.

Comment NG04-82

Comment

ATTACHMENT 1:

Chapter 9, 9.3.3.2, Page 9-45

See figure 4-6. This figure shows an extension of inundation outside the Toe Drain on YBWA including rice fields and managed wetlands as a result of project operations. Construction impacts are recognized. Why isn't the impact of operations recognized?

Response

Operations effects of inundation are addressed in Section 9.3.3.2.9 Impact TERR-9: Potential Effects on USACE, RWQCB, and CDFW Jurisdictional Wetlands, Waters, and Riparian Areas. As noted in Section 9.3.3.2, Alternative 1 would generally result in an overall increased number of wet days within the Yolo Bypass of one week (with localized areas in the east experiencing an increased average number of wet days of up to three weeks and some areas in the west experiencing no change). According to the threshold identified in 9.3.2, an effect on these resources would be substantial if it would result in the permanent reduction in acreage or function of the wetland. An increase in the number of wet days and the area of inundation as reported in Appendix H5 would not result in a reduction in acreage or a reduction in function of any wetlands that would be subject to USACE, RWQCB, or CDFW jurisdiction. See also Response to Comment NG04-18. Impacts to rice fields from an agricultural perspective are provided in Chapter 11, *Land Use and Agricultural Resources*.

Comment NG04-83

Comment

ATTACHMENT 1:

Chapter 9, 9.3.3.2, Page 9-45; 9-62

Last paragraph states: "During operations, Alternative 1 generally would result in an overall increased number of wet days within the YB of one week (with localized areas in the east experiencing an increased average number of wet days of up to three week)...In general, areas in the eastern part of the YB would experience a greater increase in the number of wet days than the west..." This is referring to special status plant species. However in 9.3.3.2.3 TERR-3 potential disturbance or mortality of and loss of suitable habitat for GGS is not mentioned for long term operation of the project. GGS are known to exist in areas of the YBWA that would be flooded under conditions described in the sentence listed above. QUESTION: Why are impacts from construction described but not impacts from project operations?

Response

Operations effects on giant garter snake, which include impacts within the entire Yolo Bypass, including the YBWA, are discussed at the end of Section 9.3.3.2.3. "During operations, changes in the duration of inundation under Alternative 1 occur during the giant garter snake inactive period (October 1 to May 1) when these animals would be dormant in upland burrows. Although inundation of some occupied burrows located below the elevation of the floodwaters may result in the loss of giant garter snake individuals, these losses are not anticipated to be substantially greater than would occur under existing conditions in an environment that is subject to annual flooding. Direct or indirect adverse effects on giant garter snakes resulting from operations would be considered less than significant." See also Response to Comment LA03-18.

Comment NG04-84

Comment

ATTACHMENT 1:

Chapter 9, 9.3.3.2.1, Page 9-46-47

Impact TERR-1: What permanent mitigation measures for impact on special- status plant species be? Mitigation measures provided for construction only in EIS/EIR.

Response

No mitigation measures are provided for operations impacts because they were determined to be less than significant, i.e., "The small expected increase in the average number of wet days under Alternative 1 is not expected to result in significant operations impacts to special-status plant species, which are tolerant of moist soils and have evolved in an area that is subject to regular inundation." According to the CEQA threshold in Section 9.3.2, an adverse effect would be substantial if it would result in a permanent reduction in the acreage and quality of suitable or known occupied habitat for special-status plant species.

Comment NG04-85

Comment

ATTACHMENT 1:

Chapter 9, 9.3.3.2.3, Page 9-64

QUESTION: In paragraph beginning "During operations, change in the duration of inundation...." Does this paragraph refer to operations at the Fremont Weir? What about impact of operations on GGS on the YBWA?

Refer Exhibit H: YBF scoping and comment documents. Already referred in previous comments here. Also refer to comments for Table 9-4 above.

Response

During operations refers to the opening and closing of the gated notch at the Fremont Weir - however, as noted in Section 9.3.1, the area of potential effects resulting from operations (the operations study area) includes the entire Yolo Bypass, including the YBWA. Therefore, the discussion of operations effects pertains to the entirety of the Yolo Bypass. See Response to Comment NG04-84 with regard to impact of operations on GGS in the Project area.

Comment NG04-86

Comment

ATTACHMENT 1:

Chapter 9, 9.3.3.2.5, Page 9-69

Impact TERR-5: Potential disturbance or Mortality of Nesting Bird Species and Loss of Suitable" This section refers to construction impacts. **QUESTION:** Why aren't the impacts to nesting on the YBWA described? This is an issue that has repeatedly been described in YBF scoping documents and comment letters beginning in 2008.

Refer Exhibit H: YBF scoping and comment documents. Already referred in previous comments here. Also refer to comments for Table 9-4 above.

Response

Operations effects, which includes the entire Yolo Bypass, including the YBWA, are discussed at the end of that section. "Under Alternative 1, the Lead Agencies do not expect operations to result in adverse effects on suitable nesting habitat for special-status bird species because operations would extend the duration of inundation only between November and March, which is outside of the nesting season. Operational effects on foraging habitat may vary by species based on the effects of inundation on their prey. The small expected change in average number of wet days under Alternative 1 may reduce foraging habitat for some species, particularly in the eastern part of the Yolo Bypass; however, the effects on foraging habitat are not expected to be substantial." See also Responses to Comments SA01-16, LA03-21, NG04-17, and NG04-49.

Comment NG04-87

Comment

ATTACHMENT 1:

Chapter 9, 9.3.3.2.5, Page 9-69

QUESTION: Why isn't there a TERR-xx for impacts of operations to sensitive species on lands south of the Fremont Weir including the YBWA?

Response

Operations effects are discussed at the end of each Impact category. The YBWA is not specifically mentioned under each impact category because operations effects span the entire Yolo Bypass - differences in effects are noted in different areas of the Yolo Bypass. Unless otherwise stated, operations effects described are assumed to apply to the YBWA as well as the rest of the Yolo Bypass.

Comment NG04-88

Comment

ATTACHMENT 1:

Chapter 9, 9.3.3.2.8, Page 9-75-76

Impact TERR-8: Increased O&M costs are not included, but could occur with 1,000 cfs after Mar. 15. QUESTION: How will flows of 1,000 cfs affect ag. and wetlands and access for education and wildlife viewing at YBWA?

Response

The flows through the new gated notch after March 15 would be limited to be less than the available capacity in Tule Canal, which would typically be up to about 300 cfs. Flows of 1,000 cfs at Fremont Weir would not affect velocities of flow at the YBWA. The analysis considered velocities under existing conditions and for each of the alternatives within the Yolo Bypass, specifically where wetlands occur, and the velocities were nearly identical across all alternatives and under existing conditions. The small magnitude of the modeled increase in the number of wet days (see Response to Comment LA03-118) and the extent of inundation would not lead to a type conversion of sensitive vegetation communities to non-sensitive vegetation communities (i.e., areas of marsh, black willow thickets, Fremont cottonwood forest, and valley oak woodland are expected to remain those community types). The location of Fremont cottonwood forest and valley oak woodland, the drier of these sensitive natural communities as defined in Section 9.3.3.2.8, is such that these communities in particular are not expected to experience much change in the amount of inundation (less than 1 day to up to 1 week of additional inundation within the YBWA and less than 1 day to up to 1 week of less inundation within the FWWA). Effects on agriculture are addressed in Chapter 11, *Land Use and Agricultural Resources*. Effects on access for education and wildlife viewing are addressed in Chapter 13, *Recreation*.

Comment NG04-89

Comment

ATTACHMENT 1:

Chapter 9, 9.3.3.2.10, Page 9-84

Impact TERR-10: Does this statement pertain to just the area around the Fremont Weir and associated ponds and canals? If it is, movement of wildlife south of this area would be impacted by operations. The impacts described in this section are not consistent with impacts of deeper flooding of seasonal wetlands described in other chapters. The issue is not the movement of wetland dependent wildlife. It is that migratory and resident birds are adapted to feeding and resting in the shallow waters of seasonal wetlands. The wetlands in the YB are intensively managed to provide food and shelter when and where the birds need it. The substitution of flood waters is not equivalent habitat. Flood waters move at a much higher velocity than water circulating through managed wetlands and flooded rice fields. Many wetland dependent wildlife are not adapted to the velocities of floodwater.

Refer to Exhibit O

Response

Operations effects refer to effects within the entire Yolo Bypass, not just within the FWWA. Section 9.3.3.2.10 addressed impacts to wildlife movement. See Response to Comment NG04-50. Impacts to nesting and foraging habitat for birds are addressed in Section 9.3.3.2.5. See Responses to Comments SA01-16, NG04-17, and NG04-88. As indicated in ES 1.14.1, even at a flow rate of 6,000 cfs, hydraulic modeling indicates that approximately 21,500 acres of the floodplain would be inundated, the majority of which would consist of low-velocity (average of 1.26 feet/second) and shallow (average of 2.6 feet deep) habitat (Reclamation and DWR 2012). Additionally, modeling results over a 16-year period (Figures 26-41 Appendix H5 of the EIS/EIR) show increases of more than two weeks in the duration of inundation (as indicated by last wet day) vary from year to year as well as in spatial distribution. As a result, few locations within the Yolo Bypass, if any, exhibit repeated increases in duration of inundation. Those locations that do exhibit multiple increases in inundation duration of greater than two weeks, exhibit that condition in only one out of five years. This is not a sufficient frequency to result in a shift of non-wetland to wetland or, conversely, wetland to non-wetland. Therefore, the Yolo Bypass would continue to provide the necessary wetland microhabitats to support the migratory and resident birds that are dependent upon them.

Comment NG04-90

Comment

ATTACHMENT 1:

Chapter 9, 9.3.3.2.11, Page 9-85

CEQA conclusion: Why isn't there a CEQA finding for impacts of long term operation of the project to YBWA rice fields and managed wetlands?

Refer to Exhibit O

Response

Operations impacts to YBWA rice fields and managed wetlands are generally included under Impact TERR-9 (Potential Effects on USACE, RWQCB, and CDFW Jurisdictional Wetlands, Waters, and Riparian Areas) to the extent that these areas are under USACE, RWQCB, and CDFW jurisdiction. Because rice fields and managed wetlands provide suitable habitat for terrestrial species, operations impacts on these areas are also generally included under Impact TERR-3 (Potential Disturbance or Mortality of and Loss of Suitable Habitat for Giant Garter Snake), Impact TERR-4 (Potential Disturbance or Mortality of, and Loss of Suitable Habitat for, Western Pond Turtle), and Impact TERR-5 (Potential Disturbance or Mortality of Nesting Bird Species and Loss of Suitable Nesting and Foraging Habitat). Impacts to YBWA rice fields and managed wetlands from an agricultural or recreational standpoint are addressed in Chapter 11, *Land Use and Agricultural Resources*, or Chapter 13, *Recreation*.

Comment NG04-91

Comment

ATTACHMENT 1:

Chapter 11, Figure 11-2, Page 11-3

CORRECTION: Current figure does not distinguish all of the 5,000 acres of managed wetlands that occurs within the land use area described as pasture (area is highlighted in green for pasture). Also the tomato area highlighted in red on the YBWA is now partway through a five year grazing lease.

Response

The figure was developed based on available data from the California Department of Conservation (2014). Data from Yolo County (2017) are now available and have been used to update the figure. Similarly, data from California Department of Conservation (2016) are now available and have been used to update Figure 11-3.

Comment NG04-92

Comment

ATTACHMENT 1:

Chapter 11, Table 11-1, Page 11-5

YBF would like to emphasize that 9,000 acres categorized as grazing land are part of Tule Ranch within YBWA.

Response

Acreages presented in the table are based on data provided by the FMMP 2014. This table has been updated with the newly available 2016 data.

Comment NG04-93**Comment**

ATTACHMENT 1:

Chapter 11, 11.3.1, Page 11-15

CORRECTION: Methods should distinguish lost revenue from agriculture leases in YBWA. Current lease income on YBWA from rice and grazing is \$650,000 annually. Implementation of any of the 6 alternatives could impact the willingness of potential leasees to bid on future leases and could impact the lease economic value. Lease income is used to fund most of the operations and maintenance costs associated with the YBWA.

Response

See Response to Comment SA01-9. See also Master Response 4: Impacts to Landowners and Other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment NG04-94**Comment**

ATTACHMENT 1:

Chapter 11, 11.3.3.2.2, Page 11-18

11.3.3.2.2 Impact AGR-2 states: "Implementation of Alternative 1 could affect farmland within the entire YB through increased periods of inundation, also referred to as effects related operations." Agricultural operations in the YB provide significant income to individual farmers, leasees, and their field workers. Using county-wide data does not show this impact.

Response

Early paragraphs in this impact analysis, Section 11.1, characterize how much of the county-wide Prime Farmland, Unique Farmland, and Farmland of Statewide Importance occur within the Yolo Bypass. Other parts of this impact analysis also characterize the operations-related effects within the Yolo Bypass. See Master Response 4: Impacts to Landowners and other users of land. To the extent appropriate, discussions related to socioeconomic impacts and compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment NG04-95**Comment**

ATTACHMENT 1:

Chapter 11, 11.3.3.2.2, Page 11-18

Floodway function impact: Any action that reduces farming and ranching operations in the YB also reduces the important vegetation management function that keeps the floodway open. Without agriculture, thousands of acres in the YB would fill up with vegetation that could slow down flood flow.

Response

No land use changes have been proposed in the Yolo Bypass, and the agricultural modeling (using BPM) does not identify the potential for permanent land conversion of agricultural properties. Therefore, the action alternatives would not reduce farming operations in a way that could create increased vegetation growth.

Comment NG04-96

Comment

ATTACHMENT 1:

Chapter 11, 11.3.3.2.2, Page 11-18

Wildlife Habitat impact: Any action that reduces farming and ranching operations in the YB also reduces the habitat values that wildlife friendly farming contributes.

Response

See Response to Comment NG04-95.

Comment NG04-97

Comment

ATTACHMENT 1:

Chapter 11, 11.3.3.2.2, Page 11-19

While impacts to agriculture in Yolo County as a whole may be LTS, If lease income on the YBWA is reduced due to additional flooding, the funding of O&M for the YBWA could be reduced or eliminated because there may not be interested tenants to bid on the lease contracts (YBWA leases are for 5 year based on the state competitive bidding process). See impacts to lost lease income in previous comment.

Response

See Response to Comment NG04-93.

Comment NG04-98

Comment

ATTACHMENT 1:

Chapter 11, Figure 11-5; 11-6, Page 11-21

YBF requests to see these figures for every year and specifically for YBWA.

Response

For the purposes of impact analysis in Chapter 11, Figures 11-5 and 11-6 characterize the impacts that are being discussed and analyzed. Additional information is available in Appendix H5.

Comment NG04-99

Comment

ATTACHMENT 1:

Chapter 11, Figures 11-5; 11-6, Page 11-21

QUESTION: Are these figures based on an average of 12 years modeled? Can the highest flow year and the lowest flow year be used for a similar figure? Can similar figures be shown that are specific to the YBWA?

Response

The graphs in Figures 11-5 and 11-6 are not based on an average of 12 years modeled. The graphs represent the total number of times the model predicted consecutive days of wetted areas greater than 10,000 acres or 20,000 acres over the 16-year modeling period. Providing the number of occurrences over all 16 water years provides a maximum number of occurrences to use in the analysis and represents effects over an extended period of time. Showing results for a single year would not represent potential long-term impacts.

Comment NG04-100

Comment

ATTACHMENT 1:

Chapter 11, Figures 11-7; 11-11; 11-12; 11-14; 11-16, Page 11-22-42

QUESTION: Why is 2002 used as comparison for Existing Conditions?

Response

As stated in Sections 11.3.3.2.2, 11.3.3.5.2, 11.3.3.6.2, and 11.3.3.7.2, 2002 conditions are used because that year had the greatest change in last day wet of all years modeled (1997 through 2012).

Comment NG04-101

Comment

ATTACHMENT 1:

Chapter 12, 12.3.2, Page 12-11

YBF recommends including an additional CEQA or NEPA threshold of significance for increased operations and maintenance costs for farmers and wetland managers resulting from increased sedimentation below new infrastructure at FW and Ag Crossing 1 including the YBWA. Sedimentation is an issue for farmers and wetland managers after flooding throughout the YB.

Refer to Exhibit M: Page 4-3; 5-12

Response

See Response to Comment LA03-59 and Master Response 4: Impacts to Landowners and Other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment NG04-102

Comment

ATTACHMENT 1:

Chapter 12, 12.3.3.2.1, Page 12-13

Impact GEO-1: What is the change in sedimentation downstream of Ag Crossing 1, including YBWA, due to operation of project? For all alternatives, what is the baseline below Ag Crossing 1 for existing conditions/no action? How will removal of sediment deposited in YBWA be paid for? Were impacts modeled below Ag Crossing 1 including YBWA? While farmers may till sediment into fields, there is also sedimentation in irrigation supply and drainage canals and other infrastructure. Sedimentation is also an impact for wetland managers. Tilling of ponds is not an annual activity. Supply and drainage canals used for wetland management will also be impacted by increased rates of sedimentation. Operations and maintenance costs on the YBWA will increase due to the increase in sedimentation under all 6 alternatives. Will project proponents pay for the additional O&M costs associated in the increase in sedimentation on the YBWA?

Response

The analysis of field by field assessment of sediment deposition was not performed. What was looked at was the estimated overall change in sediment diversion into the bypass as a result of the project as noted in the "Geomorphic and Sedimentation Analyses TM 02/14/17." The TM identified that the project impact to sediment introduced into the bypass will largely be contained within the proposed channels and existing Tule Canal. The general assessment of sediment deposition downstream of Ag Crossing #1 was considered negligible and that most of the sediment will wash through the system. See Response to LA03-59 for discussion of O&M issues and Master Response 4: Impacts to Landowners and Other Users of Land. To the extent appropriate, discussions related compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment NG04-103**Comment**

ATTACHMENT 1:

Chapter 12, 12.4.2, Page 12-22

Cumulative impacts assumes there is funding for maintenance activities related to sediment deposits.

Response

Sediment removal is included as part of each action alternative. See Master Response 4: Impacts to Landowners and other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment NG04-104**Comment**

ATTACHMENT 1:

Chapter 13, 13.1.2, Page 13-2

YBF would like to emphasize that YBWA is open and used for wildlife viewing year-round, but late fall-early February is the peak wildlife viewing season. The EIS/EIR does not make this clear.

Response

See Response to Comment SA01-4.

Comment NG04-105

Comment

ATTACHMENT 1:

Chapter 13, 13.1.2.3, Page 13-6

13.1.2.3 Yolo Bypass Wildlife Area: This section significantly understates the popularity of the YBWA to the wildlife viewing. While there are no studies on wildlife viewing visits to the YBWA, it can be estimated that there are thousands of visitors. The YBWA is a place valued for its wildlife viewing by the regional community as well as statewide and nationally. It is designated as a premium "Watchable Wildlife" site by CDFW.

Refer to Exhibit P: Director's Message;

Exhibit Q

Response

See Response to Comment SA01-4.

Comment NG04-106

Comment

ATTACHMENT 1:

Chapter 13, 13.1.2.3, Page 13-6

CORRECTION: Hunting blinds are only used by hunters. They are not a benefit for non-hunting recreation or education. YBF description needs updating to include CA Duck Days wetlands festival, bat viewing tours, volunteer program (7,000 hours annually). All of the programs are provided as a service to the public in partnership with CDFW. For the 2017-2018 school year, the Discover the Flyway program provides class visits Monday through Friday. Teaching days were fully reserved by late spring when registration opened for 2017- 2018. Every year there is a waiting list in case of cancellations.

Response

The text was clarified and the references to "recreational" uses and "hunting blinds" was removed from the text that is specific to educational uses and facilities that support the educational uses.

Comment NG04-107

Comment

ATTACHMENT 1:

Chapter 13, 13.1.2.3, Page 13-6

CORRECTION: Only hunt areas are closed to non-hunting purposes during waterfowl season. The YBWA wildlife viewing loop that starts at the entrance to the YBWA is open prior to and during hunting season.

Response

The text states: "Much of the YBWA is closed to all non-hunting purposes from two weeks before waterfowl season to one week after waterfowl season though areas designated for wildlife viewing purposes are open on most days throughout the year". This statement is consistent with the description of hunting closures in the CDFW's Yolo Bypass Wildlife Area Management Plan (CDFW 2008).

Comment NG04-108

Comment

ATTACHMENT 1:

Chapter 13, 13.1.2.3, Page 13-6

CORRECTION: CDFW owns and manages the YBWA. YBF works in partnership with CDFW to provide educational and outreach programs. Through the CDFW/YBF partnership, the YBWA is made accessible to the public to further the mission of CDFW.

Response

The document was revised to clearly state that CDFW owns and manages the YBWA and no longer infers YBF may own or manage the YBWA. The following text was deleted "in consultation with the Yolo Basin Foundation" to remove the inference. Of note, several paragraphs later, the document already describes YBF's partnership to provide educational and outreach programs.

Comment NG04-109

Comment

ATTACHMENT 1:

Chapter 13, 13.1.2.5, Page 13-7

CORRECTION: There are additional hunt clubs located in Yolo Bypass north of I- 80 including multiple clubs on the Swanston Ranch property. It should be noted that there are thousands of acres of wetlands on the private hunting club and that they provide significant managed wetland habitat for the Pacific Flyway as well hunting opportunities.

Response

Reclamation and DWR were unable to identify any formal documentation/maps that locate the private hunting clubs north of Interstate 80.

Comment NG04-110

Comment

ATTACHMENT 1:

Chapter 13, 13.2.1, Page 13-8

QUESTION: Why does EIS/EIR not include N. American Wetlands Conservation Act or N. American Bird Treaty Act as guiding documents? YBWA is known for large flocks of migratory birds specifically listed in N. American Wetlands Conservation Act. YBF recommends including descriptions of these other federal regulations.

Refer to Exhibits E & G.

Response

The North American Wetlands Conservation Act is more appropriately included in Chapter 9, *Vegetation, Wetlands, and Wildlife Resources*. It was added to Section 9.2.1. The Migratory Bird Treaty Act (which is presumed what was meant by N. American Bird Treaty Act) is already included in Section 9.2.1.

Comment NG04-111

Comment

ATTACHMENT 1:

Chapter 13, 13.2.1, Page 13-8

The North American Wetlands Conservation Act (NAWCA) mandated a grant program that fulfills a Congressional mandate declaring that maintenance of healthy populations of birds in North America depends on “the protection, restoration, and management of wetland ecosystems and associated habitats in Canada, as well as the United States and Mexico.”

NAWCA was passed, in part, to support activities under North American Waterfowl Management Plan (NAWMP), an international agreement that provides a strategy for the long-term protection of wetlands and associated uplands habitats needed by waterfowl and other migratory birds in North America. In December 2002, Congress reauthorized NAWCA and expanded its scope to include the conservation of all habitats and birds associated with wetlands ecosystems.

Refer to Exhibit D

Response

The North American Wetlands Conservation Act is more appropriately included in Chapter 9: *Vegetation, Wetlands, and Wildlife Resources*. It was added to Section 9.2.1.

Comment NG04-112

Comment

ATTACHMENT 1:

Chapter 13, 13.2.1, Page 13-13

Policy CO-1.23: All alternatives for project proposal decreases public access, compromising this action within Yolo County General Plan.

Response

Text has been added to describe conflict with the Yolo County General Plan (Policy CO-1.23) where other regulatory document conflicts are discussed including the YBWA LMP.

Comment NG04-113

Comment

ATTACHMENT 1:

Chapter 13, 13.3.3.2, Page 13-21

2nd paragraph states: "In contrast to the access affects, the operation of Alt 1 could result in a more widespread reduction in the amount of lands available for recreation opportunities as the established wildlife areas due to an increased frequency of inundation. This impact would reduce the overall amount of lands available for recreation...." We agree with this statement as it applies to the YBWA. QUESTION: Why isn't this impact noted as a NEPA social impact? As noted in comment for page 13-6 above: the value of the YBWA to the wildlife viewing public is understated throughout this chapter.

Refer to Exhibit Q

Response

See Response to Comment SA01-4.

Comment NG04-114

Comment

ATTACHMENT 1:

Chapter 13, 13.3.3.2, Page 13-21

Reduction in recreation areas is also caused by mandated CDFW closures for public safety when the Fremont Weir spills.

Refer to Exhibit R

Response

Reclamation and DWR would assist in developing a new set of closure rules that maintain safety but allow the YBWA to remain open if water is entering the Yolo Bypass in a controlled way through the new gated notch (rather than spilling over Fremont Weir).

Comment NG04-115

Comment

ATTACHMENT 1:

Chapter 13, 13.3.3.2, Page 13-27

CORRECTION: the first paragraph on page 13-27 states: "At the YBWA, Alternative 1 would result in an overall increase in the duration of inundation across 84 percent of the SBWA, or 14,062.1 acres, as shown in Table 13-3..." SBWA should read YBWA and 14,062.1 should read 16,770 as shown in Table 13-3.

Response

"SBWA" was corrected to "YBWA" in the document. However, the acreage (14,062.1) as stated in the document is correct. This acreage equates to the 84 percent of the total YBWA lands ($14,062.1/16,770.0 = 84$ percent). See Response to Comment SA01-5.

Comment NG04-116

Comment

ATTACHMENT 1:

Chapter 13, 13.3.3.2, Page 13-27

CORRECTION: The first paragraph goes on to say: "13% of YBWA lands, mostly in the northern and central portion of the YBWA as show on Figure 13-6. Alternative 1 would result in only small acreages...." The increase in flooding includes the entire eastside of the YBWA as well as northern and central portions. "only" is a qualitative term that has no place in a technical analysis.

Response

The document was updated by deleting "only" in the sentence referenced.

Comment NG04-117

Comment

ATTACHMENT 1:

Chapter 13, 13.3.3.2, Page 13-27

Loss of popular wildlife viewing and education opportunities would be impacted as well as loss of popular waterfowl hunting. The third paragraph is hunting centric and while this is an important point, the increase in closures on the YBWA will impact equally important wildlife viewing and education activities.

Response

See Response to Comment SA01-4.

Comment NG04-118

Comment

ATTACHMENT 1:

Chapter 13, 13.3.3.2, Page 13-27

The third paragraph states: "The CDFW closes the YBWA when the water surface elevation at Lisbon Weir is greater than 12 feet...." This is correct but it is not the entire story. The YBWA is closed to all public access when the Fremont Weir spills whether or not Lisbon Weir elevation is above 12 feet. Additionally, when the Lisbon Weir is at 8 feet elevation Parking Lot F is closed, which closes down hunting access to most if not all of the eastside. At 10 feet elevation the flooding is more widespread and all access can be impacted. These numbers are based on many years of CDFW personnel experience in managing the YBWA.

Response

Text and tables were added to show partial closure potential at 10 ft and 8.5 ft by year and month.

Comment NG04-119

Comment

ATTACHMENT 1:

Chapter 13, 13.3.3.2, Page 13-27

The last sentence on this page states: "However, the change in comparison to the 100-day hunting season would only be a 4.1 percent reduction in the number of hunting days, which would not be substantial" QUESTIONS: 1. Why is an average of days (10.3) an accurate number for this analysis. A more accurate number would be the median of days closed or a range of days showing the highs and lows? The average does not accurately predict the true impact. 2. Does the analysis of days closed include the descending hydrograph after a spill event for each year modelled? Based on many years of observation, the YBWA does not open immediately after the peak flood date. There is a period of time where fields and ponds are draining. The draining process cannot begin until the Toe Drain is below the elevation of the main drainage canals. Could this be when Lisbon Weir elevation is below 8 feet? Can the hydraulic modeling predict the drainage time period? Once the access roads are above water, it takes at least a week for the

roads to dry depending on the weather. Once the roads are dry enough for CDFW personnel to safely access the area, then road repair and other maintenance activities can begin. The length of time this takes can vary based weather conditions, availability of equipment and personnel, and amount of damage to repair, debris to remove, etc. If another flood event occurs within this period the process starts all over again. Short but successive Fremont Weir spilling events can close the YBWA for weeks if not months.

Response

The analysis of the reduction in hunting days, including the tables for each alternative have been updated to include all the water years on the period of record in addition to the average for all water years. The analysis text has also been updated to reflect the range of days (minimum and maximum) across all water years in addition to the average number of days.

Comment NG04-120

Comment

ATTACHMENT 1:

Chapter 13, 13.3.3.2, Page 13-28

Reduction in wildlife viewing is an additional impact because there is no access to YBWA when area is flooded. According to USFWS recreation studies, there are significantly more wildlife viewers nationwide and the pastime is increasing while hunting is decreasing nationwide.

Refer to Exhibit P: Director's Message

Response

See Response to Comment SA01-4.

Comment NG04-121

Comment

ATTACHMENT 1:

Chapter 13, 13.3.3.2, Page 13-28

CORRECTION: First paragraph states: "...Less than 18 inches " This should read 6 to 14 inches. 18 inches is too deep for most birds except Canada geese and herons and egrets.

Refer to Exhibit K

Response

The 18-inch threshold is based on the "Waterfowl Impacts of the Proposed Conservation Measure 2 for the Yolo Bypass – An effects analysis tool" report (Ducks Unlimited 2012).

Comment NG04-122**Comment**

ATTACHMENT 1:

Chapter 13, 13.3.3.2, Page 13-28

Paragraph is very confusing. Paragraph starts with: "The change in depth of the inundation could affect the recreation opportunities particularly for waterfowl hunting in the Yolo Bypass due to reductions in available shallow- flooded (i.e., less than 18 inches in depth). Seasonal managed wetlands (shallow-flooded wetlands), that are critical to waterfowl. Alternative 1 would result in a loss of shallow-flooded wetlands, which are critical lands/habitat for waterfowl. This loss of shallow-flooded wetlands would affect the amount of lands available for recreational waterfowl hunting...." QUESTION: Is the point here to state that shallow-flooded wetlands are critical waterfowl habitat? We agree with this. Is the point also that hunting opportunities are impacted when shallow-flooded wetlands are inundated? Both are important points: 1). Inundation impacts managed seasonal wetlands because the water is too deep and the velocity too great for waterfowl and shorebirds to access the food and shelter provided by the wetlands. 2). Inundation of shallow-flooded wetlands means that birds will not be there and therefore hunting opportunities will be impacted on both private lands and on the YBWA. The same impacts to wetlands also mean that there are fewer opportunities for wildlife viewing and education programs.

Refer to Exhibit O

Response

The analysis noted is incorporated under the heading Effects on Access to Recreation Opportunities at the Established Wildlife Areas, which is noting that the loss of the shallow-flooded wetlands has the potential to indirectly impact recreational hunting opportunities.

Comment NG04-123**Comment**

ATTACHMENT 1:

Chapter 13, 13.3.3.2, Page 13-28; 13-33; 13-37

QUESTIONS: 1). This section says that there is a significant reduction in critical shallow-flooded wetlands that impacts both waterfowl and shorebirds. Why is there no CEQA finding for the physical and biological loss of shallow-flooded managed wetlands? This includes physical impacts to wetlands and loss of access to critical food supply for waterfowl, shorebirds and other wetland dependent species. 2). For NEPA purposes, why are the impacts described in this section not considered social impacts to recreation and education? Does recreation here includes hunting and wildlife viewing? A significant reduction in shallow-flooded wetlands under CEQA and NEPA requires mitigation measures.

Refer to Exhibit M: Page 4-6

Response

The comment is related to a CEQA finding and mitigation for the physical and biological loss of shallow-flooded wetlands is more appropriately included in Chapter 9, *Vegetation, Wetlands, and Wildlife Resources*, and addressed there. See Responses to Comments SA01-4, NG04-89, and LA03-21.

Comment NG04-124

Comment

ATTACHMENT 1:

Chapter 13, 13.3.3.2, Page 13-33

Same comment for this page as above for page 13-28. This page is very confusing and multiple important issues are touched upon. Please show the maps and charts from the 2017 Ducks Unlimited Report that the analysis on page 13-33 is based on. Why does the year of record begin in 1922 while the year of record begins in 1997 for hydraulic modeling in other chapters? Where does the 3700-acres under normal years come from? What is a normal year? Using one period of record for waterfowl impacts analysis and a different period of record for the hydraulic modeling seems like comparing apples to oranges.

Refer to Exhibit S

Response

The Ducks Unlimited charts related to the recreation analysis are provided in Tables 13-8 through 13-10 in the document. The text was updated to reflect the water year types for the period of record from 1997-2012 as detailed in the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Hydrodynamic Modeling Report (DWR 2017). The 3,700 acres was corrected to state "up to 4,300 acres", which represents the largest reduction in shallow-flooded wetlands in the Wet water year (1999). The water years are defined in Chapter 5, *Surface Water Supply*, Section 5.2.2.2.6; and include Wet, Above Normal, Below Normal, Dry and Critical water year types. There are not normal water year types.

Comment NG04-125

Comment

ATTACHMENT 1:

Chapter 13, Figure 13-6, Page 13-29

CORRECTION: Map does not accurately depict YBWA. All areas within main YBWA boundary are within the wildlife area. Internal lines are incorrect.

Figure 13-1, Page 13-3 is correct

Response

All wetted area figures for YBWA have been updated by removing the internal boundaries.

Comment NG04-126**Comment**

ATTACHMENT 1:

Chapter 13, Figures 13-8-10, Page 13-34-36

These figures are very confusing. Figure 13-8 seems to be showing that there is a 3,000 acre decrease in shallow flooded wetlands over a 10 day period in Dec. 1999. Then in January, the amount of shallow habitat goes back to 10,000 acres. QUESTION: By Feb 16 are there are only 2,000 acres of shallow flooded habitat? Does this mean that the Fremont Weir floods again? Does this mean all of the shallow-flooded wetlands throughout the entire Bypass are dry or are they flooded over 18 inches? How does this apply to the six project alternatives? In our experience on the YBWA, CDFW staff are told to pull as many water box boards as possible when they know the Fremont Weir is going to spill. This is done to equalize water levels to prevent damage to pond levees. Once the spill is over and the YB begins to drain, the wetlands where the boards were pulled are dry. It is impossible for CDFW staff to go out to the flooded Bypass and put boards back in to retain the shallow water wetland habitat. They may not have time to reflood these ponds and the habitat is gone until the following fall flood up.

Response

Figure 13-8 is showing that the shallow-flooded seasonal managed wetlands are down to 2,000 acres in mid-February. Additionally, in Figures 13-8 through 13-10, the periods when shallow-flooded seasonal managed wetlands are reduced is due to an increase in flows into the bypass that results in water levels greater than 18 inches (i.e., the threshold for shallow-flooded seasonal managed wetlands) and not when the bypass is draining or dry.

Comment NG04-127**Comment**

ATTACHMENT 1:

Chapter 13, 13.3.3.2.1, Page 13-37

First paragraph states: "...Alternative 1 could result in additional closures at YBWA due the increase in the duration of inundation since current CDFW management closes the YBWA when certain levels of inundation occur." They close the YBWA for public safety purposes. When the Fremont Weir spills under implementation of any of the six alternative, the YBWA will be closed because it will flood within a day or two. CDFW does not formally close the FWWA but it is closed due to flooding. QUESTIONS: Is that informal? What is the point of this statement? The analysis says that the YBWA will be closed 22.6 percent over existing conditions. What year is this comparison being done with? The analysis then says that Alt 1 would result in 1.4 percent increase in the number of days closed over the year, which is not substantial. Is that

based on an average of all years modeled? Is this the DU analysis or the DWR analysis? Additionally, does this analysis use just days when the YBWA is closed due to spilling of the Fremont Weir? The YBWA is closed beyond the end of the spill because it takes at least a week if not more to drain the 16,800 acres of the YBWA and then there is the time needed for maintenance before the gates can be opened to the public.

Response

First, CDFW does not officially close the FWWA like it does at YBWA. Rather, CDFW cautions users from entering the FWWA when high water conditions exist. The access road (County Road 16) may be closed/gated, but it does not prevent users from accessing the FWWA. Second, the comparison is for the average of all water years modeled. However, the document has been updated to provide the closure days for all water years by month. Third, the 1.4 percent increase over existing conditions for the year is based on the average of all years modeled. Fourth, the analysis is based on the Lisbon Weir elevation. At 12 ft, CDFW closes the YBWA. Areas of low-lying flooding occurs in the YBWA at 8.5 ft and one of the parking areas is flooded/closed at 10 ft. The document has been updated to provide the additional 8.5 ft and 10 ft parameters at Lisbon Weir. In addition, as noted above, the document has also been updated to provide the closure days for each water year modeled by month or key season.

Comment NG04-128

Comment

ATTACHMENT 1:

Chapter 13, 13.3.3.2.1, Page 13-37

The most popular season for wildlife viewing is late Fall - February, when the migratory birds are present. Using a calculation based on the YBWA being open all year is not accurate. Also the hunting season is not all year. It is unclear what the point of the first paragraph is.

Response

See Response to Comment SA01-4.

Comment NG04-129

Comment

ATTACHMENT 1:

Chapter 13, 13.3.3.2.1, Page 13-37

The second paragraph contains an analysis of the impact of increased flooding on the Discover the Flyway program. This is also confusing. Are the days closed under Alt 1 an average? Does the days closed include the days it takes to drain the YBWA and then do any flood related maintenance? This can take anywhere from 10 days to 3 weeks under the best of conditions. The same comments and questions regarding this conclusion are found on page 13-27 and else where

in this document. Basing closure of the area on an average does not reflect what the impact will be.

Response

See Response to Comment SA01-4.

Comment NG04-130

Comment

Note: All Alternatives conflict with environmental justice

Response

Yes, the analysis indicates that all alternatives could result in an adverse and disproportionate effect on low-income or minority populations due to reduced educational opportunities offered in the YBWA. As discussed in Response to Comment SA01-4, a mitigation measure has been added under NEPA to reduce this potential effect.

Comment NG04-131

Comment

ATTACHMENT 1:

Chapter 19, 19.3.3.2.8, Page 19-16

Impact HAZ-8: Risk of exposure to mosquito-borne viruses could increase as a result of inundation-period expansion in the Yolo Bypass for fish passage and rearing: Proposed gate operations under Alt 1 would increase the typical inundation period in some locations between one day and over four weeks.....Yolo Bypass wetland managers currently work with the SYMVD to implement BMPSDWR and/or CDFW would continue to implement BMPs recommended by the SYMVD to minimize the potential for impacts to public health from mosquito-borne viruses." The CEQA conclusion is that the impact would be less than significant because current activities would continue. There will be an economic impact to CDFW for increased mosquito related costs on the YBWA associated with this acknowledged impact. This impact requires mitigation to cover the additional costs to CDFW.

Response

See Master Response 4: Impacts to Landowners and other Users of Land. There is no legal requirement to mitigate for purely socioeconomic impacts caused by a project under CEQA. Discussions relating to compensation, if any, would take place outside of the CEQA/NEPA process.

Comment NG04-132

Comment

ATTACHMENT 1:

Chapter 22, 22.1.1.5.4, Page 22-16

Impact EJ-4: Project actions could reduce educational opportunities offered in the YBWA for low-income schools. Yolo Basin Foundation staff and volunteers operate the Discover the Flyway program for schools in partnership with CDFW five days a week from September through mid-June. The Discover the Flyway program opens reservations for the following school year in May. By mid-summer all teaching days are fully subscribed and a waiting list builds. Teachers rarely cancel their class trips, even during rainy, cold weather. The large flocks of migratory birds present on the YBWA between late Fall and late February provide a spectacular field experience for students. The program serves Title 1 schools in Sacramento City Unified School District, Washington Union School District (West Sacramento), Woodland Unified School District, Esparto School District, Davis Unified School District, and others. All six proposed alternatives will increase frequency and duration of flooding making fewer days available for low income students to participate in a field trip to the YBWA. Low-income students rarely have the opportunity to enjoy the natural environment. They are less likely to play outside and enjoy the benefits of a summer vacation to a park or other natural area.

Refer to Exhibit N

Response

The analysis recognizes that low-income students would be affected due to reduced educational opportunities in the YBWA. The analysis has been revised to include the Discover the Flyway 2016-2017 school year statistics provided by the Yolo Basin Foundation.

Comment NG04-133

Comment

ATTACHMENT 1:

Chapter 22, 22.3.4, Page 22-26

The Summary of Impacts for EJ-4 states that for all action alternatives, adverse and disproportionate effects could occur. We believe that mitigation in the form of equivalent, accessible managed wetlands on the YBWA outside the Yolo Bypass are necessary.

Response

The evaluation will now include a mitigation measure (NEPA only): Reclamation and DWR will make fish passage facilities available for field trips. This mitigation measure would reduce the impacts on low-income students due to reduced educational opportunities offered in the YBWA by providing an alternative field trip site.

Comment NG04-134**Comment**

ATTACHMENT 1:

Appendix A, 4.7.4.1, Page 4-49

Additional sedimentation on the YBWA due to this feature will increase operations and maintenance costs to CDFW. QUESTION: How will these costs be paid for?

Response

See Master Response 4: Impacts to Landowners and other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process

Comment NG04-135**Comment**

ATTACHMENT 1:

Appendix A, 5.2.3.3, Page 5-20

Waterfowl Impacts: This section describes waterfowl impacts in a more organized and easier to read manner than any of the descriptions and comparisons made in Chapter 9 on Vegetation, Wetlands and Wildlife Resources and Chapter 13 on Recreation. In fact, Waterfowl Impacts are not included in Chapter 9. Waterfowl Impacts are a proxy for the managed wetland community that is an important component of the YBWA LMP and other wetlands conservation policies. Other natural communities are described. Why was this one left out? Impacts to waterfowl and managed wetlands are touched on in Chapter 13, but buried in confusing sections on impacts to hunting. In the Yolo Bypass as in the entire Pacific Flyway, managed wetlands and the waterfowl and other birds they support are an important public policy goal. We suggest clarifying these sections in the chapter text using the text on this page. If the text of the document used this section, the impacts would be clearer and less likely to be dismissed as LTS. This point is much clearer on page 5-20. Refer to Exhibits K & O

Response

Chapter 9 focuses on impacts to natural communities and sensitive status species. The impacts to waterfowl are discussed in Chapter 13 because they are primarily related to recreational opportunities in the Yolo Bypass.

Comment NG04-136**Comment**

ATTACHMENT 1:

Appendix A, 5.2.3.3, Page 5-21

The clarity of this section breaks down with the bullet point regarding the YBWA. Please refer to comments for section 13.2.3.1, page 13-27.

Response

This text has been edited for clarity.

Comment NG04-137

Comment

ATTACHMENT 1:

Appendix A, 5.2.3.3, Page 5-21; 5-23

Refer to comments and questions for Chapter 13, Figures 13-8, 13-9 and 13-10.

Response

See Response to Comment NG04-126.

Comment NG04-138

Comment

ATTACHMENT 1:

Appendix A, 5.2.3.4, Page 5-23

Education impacts: This description of the impact to education programs should be included in Chapter 13, Section 13.1.2.3, Yolo Bypass Wildlife Area, page 13-7. It is a more thorough description of the impacts. It should also be included in Chapter 22, Environmental Section 22.1.1.5.4, page 22-16.

Response

The purpose of the analyses in each chapter is different, but relevant information from this section has been carried into Chapters 13 and 22 (including information about partial closures of the YBWA).

Comment NG04-139

Comment

ATTACHMENT 1:

Appendix A, Figure 5-20, Page 5-24

This a helpful figure for understanding the impacts to managed wetlands, public use and education on the YBWA. We respectfully request similar figures for each water year that was modeled (hydraulic modeling).

Response

This information has been added to Chapter 13 (see Response to Comment NG04-127). The purpose of Appendix A is to provide an overview summary of information related to the alternatives, so this additional detail has not been added to Appendix A.

Comment NG04-140

Comment

ATTACHMENT 1:

Appendix A, Figure 5-16, Page 5-25

The results of this figure for the YBWA are confusing because the shades of blue are hard to differentiate. It appears to show areas of flooding of 3-4 weeks in specific parcels throughout the YBWA. This would appear to be in conflict with statements in the 3rd paragraph on page 5-21. We also respectfully request a set of maps for each year modeled with the colors easier to differentiate.

Response

The figures are not in conflict with the text, which describes an inundation period of about 1-2 weeks in most of the YBWA, but longer periods for small areas. The figures for each year have been added to Appendix H5.

Comment NG04-141

Comment

ATTACHMENT 1:

Appendix A, Table 5-5, Page 5-26

This table appears to show only the potential impact due to construction at the FWWA. Is this correct? If so, we respectfully request to see a similar table for the impacts to YBWA managed wetlands as a result of long term operations of the proposed project.

Response

See Response to Comment LA03-21.

Comment NG04-142

Comment

ATTACHMENT 1:

Appendix A, 5.2.3.5, Page 5-28

As stated in Chapter 9, GGS is known to use wetlands in the YBWA. When the Yolo Bypass is flooded, the only known refugia is the levee on the westside. QUESTION: Would more flooding mean more impact? Is there a similar Table for impacts due to long term operations?

Response

See Response to Comment LA03-119.

Comment NG04-143

Comment

ATTACHMENT 1:

Appendix A, 5.2.3.5, Page 5-30

Second paragraph states: "Additionally operations of all alternatives could result in in adverse effects on suitable nesting habitat for listed bird species as the alternatives might extend the duration of flooding between November and March." We agree with this statement, although this should be explained further. Nesting season begins in March for many birds on the YBWA. Providing nesting cover is a management goal for the YBWA LMP. Spring flooding promotes the growth of invasive weeds like cocklebur and sweet clover which do not provide suitable nesting habitat. Spring flooding also delays the growth of grasses and forbs that provide good nesting cover. Nesting can be delayed if there isn't suitable cover habitat. Delayed nesting can impact habitat conditions needed to successfully raise young birds.

Refer to Exhibit D

Response

See Response to Comment NG04-17.

Comment NG04-144

Comment

ATTACHMENT 1:

Appendix A, Table 5-9, Page 5-30

This table appears to show only the potential impact due to construction at the FWWA. Is this correct? If so, we respectfully request to see a similar table for the impacts to YBWA nesting cover as a result of long term operations of the proposed project.

Response

See Response to Comment NG04-86.

Comment NG04-145**Comment**

ATTACHMENT 1:

Appendix A, 5.2.3.9, Page 5-33

QUESTION: Does this section describe compatibility of the proposed project with ongoing flood management planning efforts? Aren't there compatibility issues between the proposed project and agriculture, wetlands, public use and education? There are ongoing planning efforts associated with these activities as well, but they are not included.

Response

Text is clarified to indicate that this criterion is focused on ongoing flood management planning efforts. The issues related to agriculture, wetlands, public use, and education are addressed through other criteria.

Comment NG04-146**Comment**

ATTACHMENT 1:

Appendix A, Table 5-12, Page 5-35

QUESTION: Does this table include lost income to the YBWA due to the impacts of project operations on rice and grazing leases? The annual income from these leases is \$600,000. This income is used by the CDFW to fund the majority of operations and maintenance costs associated with implementing the YBWA LMP. The lease income covers all O&M costs except salaries of CDFW YBWA staff. If this income is increased or leasees fail to renew leases due to the uncertainty of the impacts of the proposed project on their operations, this funding will need to be replaced in order for YBWA O&M to continue. Does the O&M calculation used for this table include the increase in O&M costs associated with the increase in frequency and duration of flooding? These costs include debris removal, road and water infrastructure repair, gravel replacement on roads and removal and control of invasive weeds such as cocklebur. There is also the loss of hunting income to CDFW.

Response

Table 5-12 includes losses to agriculture associated with the increased inundation on the Yolo Bypass. These losses are not attributed to a specific entity, but describe the overall economic losses. Response to Comment SA01-9 includes more information on income from leases and O&M funding.

Comment NG04-147

Comment

ATTACHMENT 1:

Appendix A, Table 5-12, Page 5-35

We request a similar table that shows the data used to calculate the YBWA portion of this table. We would like to see the associated totals under annual O&M costs and agricultural loss on the YBWA.

Response

The purpose of this table is to develop overall estimates in costs for comparative purposes. Agricultural costs are combined for the entire Yolo Bypass, and separating by landowner would not further clarify the cost-benefit analysis (where this information is considered in Appendix A). See Master Response 4 (Impacts to Landowners and other Users of Land) for additional information about changes in O&M costs for the YBWA. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment NG04-148

Comment

ATTACHMENT 1:

Appendix A, Table 5-17, Page 5-40; 5-41

QUESTION: What does high performance under effects on agriculture mean? What does medium performance mean for effects on winter maintenance activities, inundation of recreation areas, reduced food production and access restriction for waterfowl, impacts to biological resources, and compatibility with other related efforts? What does neutral performance or minor benefits mean for waterfowl foraging habitat and inundation of educational areas? If this means there is not impact, how is this consistent with statements made in Chapters 9, 13 and 22? How is this consistent with statements made on pages 5-19, 5-20, 5-21, 5-23, 5-24, 5-30 in Appendix A, Evaluation and comparison of alternatives?

Response

The purpose of this table is to provide a simple, visual comparison between alternatives for each criterion. "High performance" under effects on agriculture means that a specific alternative has less effect on agriculture than the other alternatives. The text for the green rating has been clarified to indicate "Neutral Performance or Minor Benefit/Impact."

Comment NG04-149**Comment**

ATTACHMENT 1:

Appendix C, 3, Page C-2

QUESTION: How will Yolo County, Yolo Basin Foundation, CDFW YBWA managers, Yolo Bypass landowners, wetland managers, farmers be integrated into the Adaptive Management Governance framework?

Response

The ultimate decisions related to adaptive management will need to rest with Reclamation and DWR, but they will continue to pursue coordination and collaboration with stakeholders. There would be ongoing discussions about the structure of how feedback from stakeholders would be incorporated into the adaptive management process.

Comment NG04-150**Comment**

ATTACHMENT 1:

Appendix C, 4, Page C-4

Second paragraph states: "This connection imports allochthonous riverine nutrients and organic matter to the broad floodplain of the YB. Primary productivity is stimulated by temperatures and DO concentrations..." QUESTION: What are allochthonous riverine nutrients? How does the increased frequency and duration of flooding impact the food web and primary and secondary food production in the managed wetlands and flooded rice fields? Does the "import of allochthonous riverine nutrients" impact the production of food in the previously flooded up shallow seasonal wetlands that are the basis of Moist Soil Management BMPs? Are juvenile salmon using the primary and secondary food web produced in managed wetlands and flooded rice fields?

Response

Allochthonous riverine nutrients are those materials that have been imported into an ecosystem. Allochthonous material that enters an ecosystem refers to organic matter (e.g., woody debris, plants, insects), and its nutrients, such as nitrogen and phosphorous. Increased frequency and duration of flooding allows the allochthonous inputs to establish in the riverine ecosystem. For example, the longer woody debris is inundated the more algae can grow (primary production). These algae are eaten by aquatic insects, which in turn fish feed on (secondary production). Allochthonous inputs can be from anywhere upstream in the river and "settle" downstream. Therefore, the import of allochthonous riverine nutrients can impact the production of food in the previously flooded up shallow seasonal wetlands. Multiple studies show juvenile salmon use the primary/secondary food web produced in flooded rice fields:

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- Mueller-Solger, A., A. Jassby, and D.C. Mueller-Navarra. 2002. Nutritional quality for zooplankton (*Daphnia*) in a tidal freshwater system (Sacramento-San Joaquin River Delta, USA). *Limnology and Oceanography* 47: 1468-1476.
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- Sommer, T., L. Conrad, G. O'Leary, F. Feyrer, and W. Harrell. 2002. Spawning and rearing of splittail in a model floodplain wetland. *Transactions of the American Fisheries Society* 131:966-974.
- Sommer T.R., W.C. Harrell, A. Mueller-Solger, B. Tom, W. Kimmerer. 2004. Effects of flow variation on channel and floodplain biota and habitats of the Sacramento River, California, USA. *Aquatic Conservation* 14: 247-261.
- Sommer, T, W. Harrell, and M. Nobriga. 2005. Habitat use and stranding risk of juvenile Chinook salmon on a seasonal floodplain. *North American Journal of Fisheries Management* 25:1493-1504.

Comment NG04-151

Comment

ATTACHMENT 1:

Appendix C, 4, Page C-5

First paragraph reads: "While the majority....the floodplain may be modified following the adaptive management process to affect growth, survival, and life history diversity of juvenile salmonid benefiting from the project." QUESTION: While this project is fish centric in order to meet biological opinion objectives, how will adaptive management be used to ensure that the wetland conservation objectives of the Migratory Bird Treaty Act, North American Wetlands Conservation Act, Central Valley Joint Venture and YBWA Land Management Plan?

Response

Reclamation and DWR are committed to avoiding impacts to wetlands and the environment during implementation of adaptive management procedures, but the additional programs mentioned are not the main focus of this Project (and would not be the main focus of the adaptive management program).

Comment NG04-152

Comment

ATTACHMENT 1:

Appendix C, 4, Page C-5

QUESTION: How will Adaptive Management be used to meet the biological objectives of the thousands of acres of NAWCA funded wetlands restoration and the associated management objectives?

Response

See Response to Comment NG05-151.

Comment NG04-153

Comment

ATTACHMENT 1:

Appendix C, 4, Page C-5

QUESTION: How will Adaptive Management be used to meet the management objectives and easement requirements of the thousands of acres of wetland conservation easements already present in the Yolo Bypass?

Response

See Response to Comment NG05-151.

Comment NG04-154

Comment

ATTACHMENT 1:

Appendix C, 5.1, Page C-6

Food Web Contributions: How will the monitoring categories Physical Process and Hydrology; and, Food Web be used to meeting the wetland restoration goals of the programs described in C-5 above?

Response

See Response to Comment NG05-151.

Comment NG04-155

Comment

ATTACHMENT 1:

Appendix C, 5.3, Page C-7

QUESTION: Salmonid Rearing - How will the potential management Responses to lengthen the Fremont Weir Notch operation between first and last operational dates impact agriculture, grazing and wetland management in the YB?

Response

See Response to Comment SA01-18.

Comment NG04-156

Comment

ATTACHMENT 1:

Appendix C, 5.4, Page C-8

QUESTION: Adult Fish Passage - How will the potential management Responses to operate the Fremont Weir Notch and Wallace Weir impact agriculture, grazing and wetland management in the YB?

Response

See Response to Comment SA01-18.

Comment NG04-157

Comment

ATTACHMENT 1:

Appendix C, 5.4, Page C-8

QUESTION: Physical processes and hydrology - How will extension of operations improve fish passage? How will the potential management Responses to lengthen the Fremont Weir Notch operation between first and last operational dates impact agriculture, grazing and wetland management in the YB?

Response

The operations of the new gated notch are described in Chapter 2 for each action alternative. After an overtopping event, the gates would open and/or close to prevent flow from exceeding the maximum flow for each alternative. The details of how these gates would operate could change to improve depth and velocity through the gate structure to accommodate fish passage, as long as the maximum flow rate is not exceeded. One gate could stay open longer (while another gate closes earlier), or all gates could throttle operations together. Modifying the timing and pattern of these operations could provide additional information about how to maintain conditions that are passable for fish through the notch.

Comment NG04-158**Comment**

ATTACHMENT 1:

Appendix D, Figures 9-24, N/A

We respectfully request to see these figures based on the YBWA only. Would figures based on elevations at Lisbon Weir be more useful to our evaluation?

Response

The Last Day Wet (LDW) figures and underlying data were developed for the agriculture economics analysis. The analysis used assumptions specifically related to this effort, such as dividing the bypass up into field units. A field unit was determined wet if more than 30 percent of the area was wet with additional time added in the economic analysis to ensure the fields were workable. As such, assumptions made in the figure development to support agricultural analysis would likely make new figures using the same information less valuable for other resource evaluations. In addition, because the individual field units are easily identified in the figures generated, showing the same data for a portion of the domain would add little value since the same field units would be visible only larger.

Additionally, the figures in Appendix D are outdated because they reflect alternatives that were considered earlier in the planning process. Comparable figures for the alternatives included in the EIS/EIR are in Appendix H5.

Members of the Public Comments

Comment Letter IN01, Patrick Huber, Agricultural Sustainability Institute, University of California at Davis

Comment IN01-1

Comment

I attended one of the public meetings last year as a representative of the City of Davis. During that meeting I advised the consultant team that the current population of spawning salmon on Putah Creek needed to be addressed. This population has rapidly increased over the past several years and is an important natural feature for the citizens of Davis and surrounding communities. These salmon necessarily need to traverse Yolo Bypass en route to spawning habitat in the vicinity of the cities of Davis and Winters. The proposed project is likely to have some kind of impact on this population. While my hypothesis is that it will prove beneficial to these salmon, an assessment is warranted in the EIR.

The consultant team agreed that this should be analyzed. However, unless I am just simply missing it in the voluminous DEIR, this assessment seems to be missing. Please add this assessment prior to finalizing the EIR.

Response

Potential impacts to Putah Creek salmonids were incorporated into this document under Impact FISH-15 (Section 8.3.3 *Effects and Mitigation Measures*). Putah Creek salmonids would not be substantially affected under the action alternatives relative to existing conditions. However, monitoring will continue during construction and subsequent operation of the Project to respond to unforeseen impacts to salmonids.

Comment Letter IN02, Dominic Bruno, Bypass Farms/teVelde Family Trust

Comment IN02-1

Comment

As Property and Farm Manager for David teVelde and his operation in Yolo County, Bypass Farms, I feel it very important to provide our feedback regarding these EIS/EIR documents. The following are the points I feel are important to note as this project moves forward.

In my ten years on this property it has often been overlooked by various agencies and projects that much of what has been proposed will be implemented on lands owned by Mr. teVelde. Specific to this document portions of each alternative will be implemented on parcels on both the east and west of the Yolo Bypass east levee owned by Mr. teVelde. Much of what is referred to as “Tule Pond”, the entire “Ag Crossing 1”, and lands inside the Yolo Bypass running along the west side of the east levee almost north to the Fremont Weir are part of Mr. teVelde’s holdings. Like the west Yolo Bypass Levee, the CA DWR has a maintenance and access easements for the

levees that fall inside of this alignment. However, agreements for the public access to the wildlife area and many parts of the proposed project areas are assumed public access but are in fact private property.

Response

See Master Response 4: Impacts to Landowners and other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land would occur outside of the NEPA/CEQA process.

Comment IN02-2

Comment

As the project proceeds, there needs to be some environmental indemnification to land owners and their operations. As the habitat enhancement succeeds, and as more threatened and endangered species are encouraged to use this passage, the risk for incidental take also increases. There are always some risks of incidental take and they exist because of the ag operation and environmental interface. Attention needs to be paid to how these enhancement projects will increase the duration of the timing when both ag and environmental interests are engaged in their various activities. Take into consideration, Bypass Farm's routine operations such as pruning, control of vegetation along riparian areas, reestablishing locations where irrigation pumps are seasonally installed, and the creation of irrigation drainage ditches and drains (which are all normal operations at the beginning and end of each season) will be occurring along the areas where projects will potentially be implemented.

Response

Activities in the Yolo Bypass are already subject to compliance with the state and federal endangered species acts. Therefore, although the action alternatives are expected to foster an increase in the numbers of listed fish species, they do not change existing landowner responsibilities to avoid harm to listed fish species. Lands in the Yolo Bypass are already inundated as a result of flood events and, thus, inundation from operation of the action alternatives would not introduce new species or require different land management practices. In response to the issue of management of trapped fish, CDFW has noted that the capture and relocation of injured or trapped wildlife listed under ESA or CESA can only be performed by personnel with appropriate state and/or federal permits. Reclamation and DWR are not proposing specific actions to reduce stranding at this time. If monitoring identifies areas that are stranding concerns, Reclamation and DWR would work with landowners to reduce stranding through adaptive management.

If landowners can show that managing for listed species is likely to increase their costs of operation, they can raise these costs in their negotiations with regard to just compensation. It should be noted that DWR and others are undertaking habitat restoration in nearby and more remote areas of the Delta. As such, the anticipated improvement in numbers of endangered species may be attributable to many small to medium changes to Delta habitat, and difficult to attribute to any one project.

Although landowner compliance with endangered species laws (for actions that are not related to this Project) is not an environmental impact for the purpose of analysis in the EIS/EIR, DWR and Reclamation are willing to help facilitate discussions with affected land users and the permitting agencies regarding these concerns. These discussions would take place outside of the NEPA/CEQA process.

See Response to Comment LA03-59 with regard to O&M activities.

Comment IN02-3

Comment

While the information included in these documents is very detailed, it is also understandably very specific to the project area. Being so specific it fails to include any improvements to the Ag operation areas where fish can currently strand as water recedes. Hopefully, these project improvements will deter fish from entering ag areas or assist their exiting as waters recede. It is only logical that more attention will be paid to the project area with all the publicity and public monies being invested. The landowner and ag operation need to be protected if preexisting problem areas for fish are not resolved by the large project. Problem areas need to be identified and mitigated with the DWR or NGO so there is no liability on the part of the landowner if an issue is identified after projects are completed.

Response

See Response to Comment IN02-2 regarding landowner responsibilities with regard to endangered species. Reclamation and DWR are not proposing specific actions to reduce stranding at this time. If monitoring identifies areas that are stranding concerns, Reclamation and DWR would work with landowners to reduce stranding through adaptive management (see Appendix C).

Comment IN02-4

Comment

There is also little mention of additional / or arrival of other species besides the critical fish species that will benefit from easier access back into the river. It seems that there would be more plant and animal species that would benefit from all the alternatives, increased flows and flood durations. The idea of added species and a wider wildlife biodiversity is great. However, as new species are identified or move in it will also increase the potential for additional farming restrictions and impacts on ag land. For an operation that surrounds the project areas this is a cause for concern.

Response

There are not anticipated to be substantive changes in vegetation and wildlife communities associated with the operations. As noted in the EIS/EIR, the increase in the period of inundation will not occur frequently enough to result in a habitat change. Therefore, it would not appear that any change in regulatory oversight would occur above and beyond current conditions.

Comment IN02-5**Comment**

Chapter 2.3.1- Ag Crossing 1.

Ag Crossing 1 is an integral component to connecting the Tule Canal to the River. Bypass Farms has the infrastructure to move irrigation water from the Ridge cut Slough through the Yolo Bypass East Levee and into the upper Elkhorn basin. Despite discussion with the DWR engineers and biologists regarding alternatives to a siphon type system, this method has been included in this document. The concern with the siphons is that they will fill rapidly with sediment and become useless or quickly become a very challenging maintenance item. Siphons work very well where large amounts of water are being moved preventing sediment gathering at the bottom.

In this location we are the very bottom of the irrigation system and flows can be intermittent. The slow flows are of Ridge cut water with high turbidity and sediment. Ag Crossing 1 is inside the Bypass and will be subject to whatever sediment gathers after flood events.

Response

At Agricultural Road Crossing 1, the channel crossing Tule Canal has two berms (on the north and south of the cross-channel) that allow the water to cross Tule Canal to be delivered to the Elkhorn area. A new structure would also include two sets of weirs or flashboards to allow flow to cross Tule Canal, which would be more complex operationally. Additionally, the season that water is conveyed to the Elkhorn Area is not only during the summer, but sometimes during the spring when fish could be present in the Tule Canal. The option for weirs or flashboards was not carried forward for further consideration because it could compromise either fish passage or water deliveries.

DWR and Reclamation will continue to work with the landowner for design optimization, right-of-way needs, and maintenance planning, taking into account the landowner's comments.

Comment IN02-6**Comment**

The sediment from the water does not account for the beaver and wildlife activity coming from the adjacent wildlife area. Beavers can be very problematic for water delivery and dealing with them and their industrious habits can be very costly. Pipeline could quickly be plugged and siphons going below grade will be very challenging to maintain.

Response

See Responses to Comments IN02-5.

Comment IN02-7

Comment

In my opinion, it would be best to install seasonally removable flash boards, a weir or other control structures to allow water to be held at a higher elevation in the irrigation channel during the summer and when removed could allow water to flow unimpeded from the Tule pond into the Tule canal during the fish passage season.

Response

This recommendation was considered during the early stages of developing alternatives. See Response to Comment IN02-5.

Comment IN02-8

Comment

If the siphons are the selected method of moving the water the following requests would be made:

- construct the structure so that the headwall of siphons can be accessed easily with a Backhoe or excavator for routine clearing and maintenance
- Install screens on the headwall to prevent wildlife from entering the pipes
- Include a water control / over flow structure that can be used to divert water to the south. Water control would be located just west of the weir or siphons to allow ag irrigation water to be diverted into the Tule canal during the irrigation season and for flooding of the adjacent private wetland area/ fields for shorebird and waterfowl programs and recreation.
- Upon completion of the project ensure the following: a.) re-installment of a gate on the road and b.) install fencing or berms if new access points have been created to prevent trespass on private lands. Gates and possible fencing will also provide a defined means for public access into the wildlife area.
- an agreement/ easement with the operators of the wildlife area, the operators of the project and the land owner to allow farm personal and equipment access to both sides of the Ag Crossing 1 structure and general area. This will ensure that any maintenance work, cleaning, permitted wildlife control is permissible and allowed.
- Delineation of property boundary at Ag Crossing 1. The DWR and DFW needs to clearly define the complete access and property lines on any maps or publications regarding to the Fremont Weir wildlife area. As well as a clear definition of maintenance, access of structure and existing irrigation infrastructure.
- reestablish the northern side of the irrigation canal west of the project to prevent irrigation water runoff, surface water diversion into the Fremont Weir wildlife area and safe public access. The wildlife area has been inaccessible to the farming operation for some time. This project will greatly benefit Bypass Farms by potentially helping to shore up the north side of

the irrigation channel which in turn will allow us to irrigate and convey water without water losses into the Tule pond area.

Response

See Response to Comment IN02-5.

Comment IN02-9

Comment

Spoils

Regardless of the alternative that is selected and goes forward with construction, Bypass Farms looks forward to working with the DWR and the contractors in providing suitable lands for depositing spoils. The teVelde properties adjacent to the Project site will hopefully make for less hauling and help control costs to Project implementation. In addition, dirt deposited by previous projects to clean out the weir and Bypass that elevated the lands adjacent to the Bypass levee, have helped control and mitigate seepage. The ability to increase the elevation of additional lands will coincide nicely with the potential for more seepage from longer duration of flood/ water against the east Yolo Bypass Levee.

Response

Reclamation and DWR would consider this type of agreement, but no formal agreements can be made until after the agencies make a decision on the alternative to implement. Chapter 2 has been revised to indicate that these types of agreement would be the preferred way to dispose of sediment.

Comment IN02-10

Comment

Selected alternative-

Alternative 5 is the provided alternative that Bypass Farms would prefer to see put into place. The biggest benefits we see from this alternative –

- Multiple gates – in discussion with biologists the multiple gate idea should provide greater benefit to critical species
- The project and channel are in middle of the wildlife area- any additional/ non-flood flows will not be against the east yolo bypass levee
- The project ties into the south end of Tule pond which is an area that the creation of a channel and tying into Ag Crossing 1 will have a benefit to the agricultural operations

Response

See Response to Comment LA03-6 about selection of a preferred alternative.

Comment IN02-11

Comment

General comments and Concerns

- Facility maintenance
 - Will there be planned and funded routine maintenance of the created channel and ag crossing structures?
 - Would the DWR be willing to partner/ agree to a maintenance contract with Bypass Farms to provide channel maintenance as needed if costs are covered in return for any dirt that is generated on a routine basis?

Response

See Master Response 4: Impacts to Landowners and other Users of Land. DWR and Reclamation would consider partnering with local landowners to perform maintenance activities; maintenance agreements would be considered after a decision is made to implement a project.

Comment IN02-12

Comment

- Access

There are studies included for all types of impacts related to access and construction management / BMPS. However, I didn't note anything regarding maintenance or assistance to maintain the County Roads 16 and 117 during and after construction. Will any maintenance to these roads be implemented? Or perhaps maintenance will be limited to a pre-construction state?

Response

See Response to Comment LA08-17.

Comment IN02-13

Comment

I found no study or mention of increased public access due to publicity and improvements in the wildlife area and mitigation for additional / more people and traffic. Will any mitigation be taken to control public traffic? For example, there are currently no public facilities in the wildlife area and even though it is technically closed most of the year there has been a definite increase in use and traffic which continues year-round. This level has steadily increased over the past couple years.

Response

The Project does not include additional public facilities that would increase recreation at facilities in the Project area. The Project is not responsible for any increase in background traffic that is not related to the Project construction and operations.

Comment Letter IN03, Deirdre Des Jardins, California Water Research***Comment IN03-1*****Comment**

California Water Research requests that Reclamation and the Department of Water Resources analyze alternatives with gate closure dates of March 30 and April 30 for the inundation flows, to help meet the obligations of the Central Valley Project and State Water Project to offset project impacts on Chinook salmon and to sustain natural production of Chinook salmon in the Sacramento River basin. Doing so would also be important for mitigation of impacts of any new intakes in the North Delta.

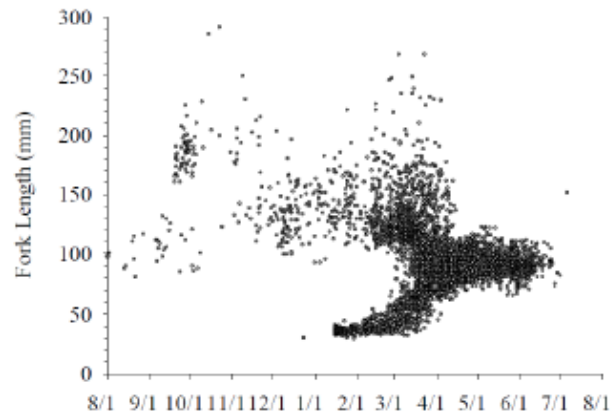
Response

See Master Response 3: Inundation Period. Mitigation for the impacts of the North Delta Intakes is beyond the scope of this Project.

Comment IN03-2**Comment**

The Department of Fish and Wildlife developed a conceptual model of Chinook salmon and steelhead life histories in 2008 as part of the Delta Regional Ecosystem Restoration Implementation Plan (DRERIP). The Chinook salmon and steelhead DRERIP conceptual life history model was compiled by John G. Williams, and was peer reviewed in 2010.¹ Figure 30 from page 46 of the DRERIP model shows juvenile salvage in the Delta over a six-year period from 1995-2001. Clearly fry and parr migrants emigrate through April and would benefit from access to floodplain habitat for rearing.

Figure 30. Juvenile Chinook at the Delta diversions; size at date of 6,752 juvenile Chinook sampled at the CVP and SWP diversion facilities in the Delta from August 1995 through July 2001. Data from Hedgecock (2002).



Footnote 1: Williams, G. J. 2010. Life History Conceptual Model for Chinook salmon and Steelhead. DRERIP Delta Conceptual Model. Sacramento (CA): Delta Regional Ecosystem Restoration Implementation Plan. Available at <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=28422>. Incorporated by reference.

Response

See Master Response 3: Inundation Period. The figure cited in this comment reflects juvenile presence in the Delta for multiple runs of juvenile Chinook salmon. As described in Master Response 3, the inundation end date was identified to be in March (instead of April) based on presence at Knights Landing, which is much closer to the Fremont Weir, of the focus fish for this Project (winter-run and spring-run Chinook salmon).

Comment IN03-3

Comment

Analyzing inundation dates of March 30 and April 30 is also consistent with the recommendations of the 2010 Delta Flow Criteria report produced by the State Water Resources Control Board pursuant Water Code section 85086 (b)(1).² The report states,

The timing of floodplain inundation for the protection of Central Valley Chinook salmon should generally occur from winter to mid-spring to coincide with the peak juvenile Chinook salmon outmigration period (which itself generally coincides with peak flows) and to avoid non-native access to the floodplain (which would generally occur in late- spring). (AR/NHI 1, p. 25.) The benefits of floodplain inundation generally increase with increasing duration, with even relatively short periods of two-weeks providing potential benefits to salmon. (Jeffres et al., 2008 as cited in AR/NHI 1, p. 25.) (p. 62.)

Footnote 2: State Water Resources Control Board, 2010 Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem. Available at https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/deltaflow/docs/fin_al_rpt080310.pdf Incorporated by reference.

Response

As described in Response to Comment IN03-2, the recommendation for inundation end date was based on presence at Knights Landing of the focus fish for this Project. The text cited in this comment is considering floodplain for all runs of Chinook salmon for a larger geographical area, and does not specify an end date of April 30 (but uses the term “mid-spring”). See Master Response 3: Inundation Period.

Comment IN03-4

Comment

The 2010 Delta flow criteria report also had the following table of recommendations for inundation of the bypass (p. 163.) DWR and Reclamation should analyze alternatives consistent with the recommendations in the 2010 Delta flow criteria report.

Appendix A, Table 5. Floodplain inundation flow recommendations summary table.

Water Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Source / Note	
CDPG AN & W	≥ 30 day floodplain inundation												79	
EDF / Stillwater	BN AN W	64000 (pulse flow, 21 consecutive days) 64000 (pulse flow, 35 consecutive days) 64000 (pulse flow, 49 consecutive days)											37 Sac Riv - Yolo Byp	
TBI / NRDC / AR / NHI	C (0-20 percentile) D (20-40 percentile) BN AN W	27500 for 15 cont days 27500 for 30 cont days 30000 for 60 cont days 32500 for 90 continuous days 35000 for 120 continuous days											34 Sac Riv - Yolo Byp	
AR / NHI	All	Sac Riv at Bend Bridge - Pulse flows continuously exceed 8000, periodically exceed 12000, for a duration exceeding 2 weeks										See Jan - May	32	
USFWS	5 of 10 yrs	"The Board should consider the importance of more frequent floodplain inundation (especially Yolo Bypass flows) when determining the Delta outflows."											80	
NMFS - OCAP Bio Op	All	"...Reclamation and DWR shall, to the maximum extent of their authorities, provide significantly increased acreage of seasonal floodplain rearing habitat, with biologically appropriate durations and magnitudes, from December through April, in the lower Sacramento River basin, on a return rate of approximately one to three years, depending on water year type."											See Jan-Apr	81
NMFS - Recovery Plan	All	"Enhance the Yolo Bypass by re-configuring Fremont and Sacramento weirs to: ... and (6) create annual spring inundation of at least 8000 cfs to fully activate the Yolo Bypass floodplain."												82
Delta Solutions Group	8 of 10 yrs 5 of 10 yrs	Yolo Bypass 2500 (Sac Riv ~ 45750)			Yolo Bypass 4000 (pulse) (Sac Riv ~ 50150)								42	
San Joaquin River														
EDF / Stillwater	AN W	14600 (pulse flow, ≥ 21 consecutive days) 14600 (pulse flow, ≥ 35 consecutive days)											57	
See TBI / NRDC and AR / NHI SJ River Inflow recommendations, flows >20000 cfs to trigger floodplain inundation														

Response

It appears that the cited table includes stakeholder recommendations for floodplain inundation flows for the entire Sacramento and San Joaquin river systems. Some of these include recommendations for the Yolo Bypass, but they are fairly general recommendations. The duration of the recommendations is different from the duration considered in this EIS/EIR; see Master Response 3: Inundation Period for more information.

Comment Letter IN04, John Brennan and David Katz, Cal Marsh & Farm Ventures, LLC

Comment IN04-1

Comment

The goal of the Project is to provide, more and better, floodplain habitat for winter run Chinook salmon juveniles coming out of the upper Sacramento River in late fall and early winter.

Studies have shown that juvenile salmon use such habitats selectively on their migration to the ocean, resulting in enhanced growth, increased survival, and population abundance. Floodplain habitats are found in the lower Sacramento River, above the Delta, as well as in the river channels of the tidal Delta. Scientific knowledge of floodplain performance and its productive capability is far better today than when the Biological Opinion was written. Today it is now clearly understood that it is not just a matter of flooded acreage during flood events, but greater benefits can be obtained when the waters are retained with lower flow rates allowing floodwaters to warm up and produce more food for fish. The Yolo Bypass, with both the river and tidal elements, is an area with significant habitat potential if water and fish were allowed increased access; this can be achieved through structural modifications to the Fremont Weir to increase the frequency and magnitude of flows from the Sacramento River into the Bypass. With modifications flows could start earlier, last longer, be higher in volume, and flow rate than at present. The main difference between the alternatives presented is location of the notch in the Fremont Weir and the amount of flow that will be discharged into the Bypass. The information presented in the EIR shows that a "managed" 3,000 cfs flow could inundate similar acreage as the 6,000 cfs alternative, minimal internal infrastructure. Alternative 4, with half the flow, creates the same floodplain foot-print, maintains the same number of wetted-acre days and provides higher quality habitat. The proposed infrastructure would allow volitional movement into and out of the floodplain areas by both juvenile and adult fish. In addition, the lower flow alternative is more agreeable to landowners within the Bypass who would be affected; only the willing landowners would participate. In summary, we are advocates for "managed" floodplain habitat in the Yolo Bypass and believe it is essential to the survival of the salmon populations in the Sacramento River watershed.

Response

Alternative 4 is fully analyzed within the EIS/EIR; Chapter 8 assesses potential benefits and impacts for sensitive fish species. See Response to LA03-6 about selection of a preferred alternative.

Comment Letter IN05, Ronald A. Arendt, Channel Ranch

Comment IN05-1

Comment

My clients, Channel Ranch and its members, through my office are expressing their concerns and opposition to the proposed State and Federal Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project. The Channel Ranch Partnership has been in existence for over 45 years with two primary purposes and goals. These are conservation of wetlands and wildlife and also providing an outdoor experience of hunting and fishing for family members and guests. The project as proposed substantially impairs management of their property to achieve both of those goals as it would affect enjoyment of their valued property during substantial periods of time presently utilized for those purposes.

Response

Comment indicates opposition to the Project. Comment does not suggest any deficiencies in the EIS/EIR.

Comment IN05-2

Comment

It appears that the thought processes utilized in the project proposal are quite flawed. Other projects presently in place contraindicate success should this project be undertaken. The California Department of Fish and Wildlife has identified Striped Bass is a major predator for Salmonid young. That same department has programs in place which relocate Striped Bass downriver of the access point of this proposed project area which would be utilized as a means of ingress and egress of the Salmonid young to the ocean. What seems to be overlooked is the proposition of increased mammal and avian predation of those young fish in the floodplain created by the lowering of the weirs. It is recognized in studies by the DWR and Bureau of Reclamation that floodplain rearing reduces the probability that many of these juvenile fish would reach the ocean.

Response

Section 8.1.3.3.2 describes fisheries floodplain habitat considerations and potential benefits and constraints of increased floodplain inundation, including predation considerations. Predation also is discussed in Section 8.1.4.6. Impact FISH-17 specifically evaluates predation associated with each Project alternative relative to existing conditions. The SBM discussed in these sections addresses both juvenile survival and growth on the Yolo Bypass and simulates the overall differences in the abundances of adult returns based on both juvenile growth and survival assumptions. In addition, the Adaptive Management Plan includes measures to optimize biological benefits of the Project based on future operations and associated biological monitoring. Overall, it is expected that the targeted fish populations will increase as a result of the Project. See Master Response 1: Fish Benefits.

Comment IN05-3

Comment

Given that there is an overriding concern about climate change causing increased temperatures, utilization of the floodplain could have a disastrous effect on any of the young fish which might be generated or introduced by the flooding of the project area. What is also seemingly overlooked is the fact that we have been in many years of drought.

Response

The modeling analysis includes the best available information about potential changes from climate change. If additional climate change factors affect fish in the future, they would be addressed through future monitoring and adaptive management of Project operations would address potential future effects of climate change on the Yolo Bypass. See Master Response 1: Fish Benefits.

Comment IN05-4

Comment

The dollars used to fund this project would be better spent in creating a water retention system at higher elevations to serve the general human populace and its increasing water demands both locally as well as to the South.

Response

A new water storage facility would not meet the purpose and need/project objectives of this Project; therefore, it is not analyzed as an alternative in the EIS/EIR.

Comment IN05-5

Comment

Increased Striped Bass limits would be far more efficacious and with associated increased revenues.

Response

While increased striped bass limits may have an effect on predation of sensitive fish species, they would not address the purpose and need/project objectives related to increased floodplain rearing habitat for juvenile salmonids, and are not within the scope of the responsibilities and authorities of DWR and Reclamation.

Comment IN05-6**Comment**

Also very important to the members of Channel Ranch is the financial and fiscal effect on the partnership should this project go through. A substantial decrease in the value of the property will result should this project go forward. For over 45 years this partnership property has been cultivated and maintained for the purpose of an investment as well as outdoor recreational enjoyment. Levees have been constructed. Duck blinds have been placed. Indigenous crops have been promoted. Water pumping equipment has been maintained. Access roads have been created and maintained both by owners of the property as well as government entities.

Response

See Master Response 4: Impacts to Landowners and other Users of Land. To the extent appropriate, discussions related to socioeconomic impacts and compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment IN05-7**Comment**

Utilization of the property in the manner which is recommended by the project effectively constitutes a taking which by the very least should be compensable to the owners of said property. There appears to be no provision in the project for such compensation.

Response

See Master Response 4: Impacts to Landowners and other Users of Land. To the extent appropriate, discussions related to socioeconomic impacts and compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment IN05-8**Comment**

Rather than spend substantial time and money and effort in creating a speculative project, we encourage those who support this project to revisit better usage of those dollars for the overall general good rather than to a project which has many aspects of failure which seemingly have not been thoroughly and conscientiously thought out with the common good in mind.

Response

The action alternatives were identified to meet the purpose and need/project objectives, considering comments received during public scoping and in coordination with stakeholders.

Comment Letter IN06, Kelley M. Tabor, Conaway Preservation Group

Comment IN06-1

Comment

The following comments on the draft environmental impact report/environmental impact statement (DEIR/EIS) for the proposed Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project (Project) are submitted on behalf of the Conaway Preservation Group (Conaway).

Conaway owns Conaway Ranch, which comprises over 17,000 contiguous acres of active farmland, open space, and wildlife habitat along the Sacramento River in Yolo County. Approximately 40 percent of the Conaway Ranch property is located within the Yolo Bypass, making it a strategic location for a wide variety of projects and programs to improve flood protection, improve water quality, preserve open space, and provide fish and wildlife habitat. The Ranch's productive farmlands also play an important role in the local economy as a steady source of revenue and labor.

Conaway supports the joint effort of the U.S. Bureau of Reclamation (USBR) and California Department of Water Resources (DWR) (collectively, the "Lead Agencies") in pursuing the proposed Project. Conaway has continually pressed for such restoration actions within the Yolo Bypass because it believes that such efforts can achieve the co-equal goals of aiding endangered and threatened fish species and supporting agricultural and recreational opportunities on surrounding private property. Furthermore, because of its 85 percent ownership of the land within Reclamation District 2035 (RD 2035), Conaway is uniquely positioned to assist in the acquisition of necessary project components, such as flood and habitat conservation easements.

The Lead Agencies have an exceptional opportunity to advance state-wide objectives in environmental restoration with the cooperation of willing sellers, such as Conaway. DWR has recognized at public meetings, in response to questions about the possible use of eminent domain, that the Project will not be implemented without willing sellers. It is within this context that Conaway offers comments on the DEIR/EIS. Although the following comments focus on Alternative 1, the preferred EIR alternative, they apply equally to Alternatives 2 through 6.

Response

Many of the comments relate to compensation issues. Impacts relating to compensation for use of a landowner's land are not environmental impacts and do not need to be discussed in the EIS/EIR. Discussions relating to just compensation to be paid to specific landowners will take place outside of the CEQA/NEPA process.

The United States and California Constitutions prohibit the taking of property without just compensation. DWR and Reclamation recognize that some property may be affected by the construction activities and that, as a result of operation of the proposed Project, some property may be subject to increased inundation on the shoulders of flood events. DWR and Reclamation also recognize that there are existing flood and habitat easements on some of the property. DWR and Reclamation will work with each individual landowner to determine whether there are

adverse impacts to the property owners and what kind of compensation is appropriate. This is part of the normal right of way activities carried out by these agencies.

DWR and Reclamation have stated that they intend to work with willing sellers to acquire the necessary property rights for Project implementation. DWR and Reclamation will discuss property rights with individual landowners, including farmers, ranchers, duck club owners, and other types of landowners. See Master Response 4: Impacts to Landowners and Other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment IN06-2

Comment

I. The Lead Agencies Must Obtain Conaway's Consent to Increase Inundation of Conaway Ranch Lands Within the Yolo Bypass

Alternative 1 would allow increased flows-up to 6,000 cubic feet per second (cfs) from the Sacramento River to enter the Yolo Bypass through a gated notch on the east side of the Fremont Weir. Compared to the No Action Alternative presented in the DEIR/EIS, Alternative 1 would inundate portions of Conaway for purposes other than flood control and would result in the inundation of up to 5,000 acres in non-flood years.

The DEIR/EIS states that "[I]and currently subject to agricultural activities, including those under conservation easements would continue to be farmed and remain subject to existing easements and restrictions." (DEIR/EIS, pp. 11-17.) The Sacramento and San Joaquin Drainage District (SSJDD) currently holds an easement Off Conaway Ranch for flood control purposes. ("Flood control easement" attached as Exhibit A.) Specifically, the flood control easement provides "... a perpetual right and easement ... for the passage of all flood waters of the Yolo Bypass, which from time to time inundate, or which have heretofore inundated, the lands of the grantor herein" (Exhibit A at pp. 363-364.)

Although the DEIR/EIS acknowledges the continued effect of existing easements attached to the land affected by the proposed Project, the Project proposes to inundate portions of Conaway Ranch for a use that is not authorized under the existing flood control easement. Civil Code section 806 states, "The extent of a servitude is determined by the terms of the grant, or the nature of the enjoyment by which it was acquired." By its express terms, the existing flood easement grants SSJDD a non-possessory interest in the underlying land for flood control purposes only and does not include any other uses. However, the proposed Project is intended to enhance fisheries rearing habitat. (DEIR/EIS, p. ES-2.) The proposed use clearly exceeds the scope of the existing flood control easement.

Changing the nature of an easement, which results in an increased burden on the underlying land, is not permissible without the landowner's consent. (*Krieger v. Pacific Gas and Electric Co.* (1981) 119 Cal.App.3d 137, 145-146.) Enhancing fisheries rearing habitat by extending the geographic extent and duration of inundation would significantly increase the burden on Conaway as the underlying landowner. For example, although not discussed in the DEIR/EIS, increased flooding would damage the Cross Canal-used for conveyance of irrigation water-thereby preventing water from being delivered to Conaway Ranch lands outside of the Yolo

Bypass. Current flows in the Yolo Bypass are sufficient to erode the berms of the Cross Canal, which require an estimated \$50,000 to \$100,000 in annual maintenance in order to maintain the carrying capacity. In fact, RD 2035 spent \$60,000 to restore the Cross Canal in 2017 after high water in the Yolo Bypass. However, it is clear that more frequent flooding of the Cross Canal would require more frequent repairs. Piping of a one-third section of the Cross Canal to permanently prevent damage would cost an estimated \$10 million. The DEIR/EIS does not address the Project's potential to damage the Cross Canal; however, as a likely consequence of the proposed Project, these damages necessitate a discussion of mitigation options to ensure annual or permanent repairs.

Response

In response to the comments regarding changes to the nature of flood easements, see Response to Comment IN06-1 and Master Response 4. Impacts relating to compensation for use of a landowner's land are not environmental impacts and do not need to be discussed in the EIS/EIR.

Regarding comments on damages to Cross Canal, the area surrounding Cross Canal is at a higher elevation and is unlikely to experience any damage due to the proposed Project. The damages experienced in 2017 that resulted in restoration efforts by RD 2035 were caused by the extreme wet conditions experienced during the year. Under all proposed alternatives, changes in flood area would be minimal during wet years (see Appendix H5).

Comment IN06-3

Comment

When the Cross Canal is out of commission due to damage from the Yolo Bypass flows, Conaway and RD 2035 must pump groundwater to meet irrigation demands. However, at a cost of \$50 per acre foot, groundwater is significantly more expensive than the \$6 per acre foot cost of Sacramento River water that Conaway diverts pursuant to its state-held water rights. Furthermore, because the DEIR/EIS incorrectly concludes that the Project as proposed would not lead to additional groundwater pumping, it also incorrectly concludes that impacts to land subsidence would be less than significant. (DEIR/EIS, pp. 7-28, 7-45.) The analysis disregards the costs and regulatory restrictions on private landowners who actively monitor and manage subsidence, and potential impacts to critical infrastructure, including the Yolo Bypass levees.

Response

See Response to Comment IN06-2. Proposed alternatives would not affect the Cross Canal and therefore not cause an increase in groundwater pumping due to decreased Cross Canal deliveries.

Comment IN06-4

Comment

Drainage culvert capacity would also need to be increased at an estimated cost of \$250,000 to \$500,000, and general ditch maintenance, including sediment deposition removal, would need to occur more frequently, at a cost of \$50,000 each year. Impacts to other drainage and irrigation

structures, such as levees, water control structure, and roads, would also result in increased maintenance activities and associated costs to Conaway. Additionally, by adding 6,000 cfs of additional flows in the Yolo Bypass, the freeboard would be further reduced and the level of flood protection provided by the west levee of the Yolo Bypass would be diminished.

Furthermore, because of the broader area of inundation, a larger portion of Conaway Ranch lands would need to be leveled approximately every two to three years at a cost of \$200 to \$300 per acre- an additional cost to Conaway of up to \$1.5 million. Such costs directly affect potential profitability of rice and other crops grown on Conaway Ranch. Finally, as discussed further below, the Project will increase the burden on Conaway through increased regulatory risk of liability under the federal and state Endangered Species Acts (ESA).

Response

See Responses to Comments IN06-1 and LA03-59 for more information on O&M and Response to Comment IN02-2 regarding endangered species and ESA liability.

Adding 6,000 cfs of additional flow to the Yolo Bypass could increase the water surface elevation of flow into the bypass, but as discussed in Impact HYD-1, none of the proposed alternatives would increase flows above the maximum simulated flow into the bypass for the period of record relative to either the existing conditions or the No Action Alternative. Therefore, the comment is incorrect in stating that there would be a reduction in level of flood protection due to the Project.

Comment IN06-5

Comment

The use proposed by the Project is not authorized by the existing flood control easement and significantly expands the burdens imposed on the landowner. This would result in a taking of private property without payment of just compensation as guaranteed by the Constitution of the United States and the California Constitution. This discussion is notably absent from the DEIR/EIS, but is pertinent to the feasibility of the proposed Project and alternatives discussion.

Response

See Response to Comment IN06-1 and Master Response 4.

Comment IN06-6

Comment

The DEIR/EIS should be revised to reflect the Project's significant impacts to the Cross Canal, and associated impacts to groundwater resources, as well as increased subsidence and impacts to agricultural resources and crop yields, and mitigation measures should be included to address these impacts.

Response

See Responses to Comments IN06-2 and IN06-3 regarding potential effects to the Cross Canal.

Comment IN06-7

Comment

For the proposed Project to move forward, it also is necessary for the Lead Agencies to consult with Conaway and reach agreement regarding necessary amendments to the existing flood easement.

Response

See Response to Comment IN06-1 and Master Response 4.

Comment IN06-8

Comment

II. The Proposed Project Would Have Quantifiable Impacts on Conaway Agricultural Income and the Local Economy Due to Reduced Agricultural Yields

The increased inundation would impact agricultural production on Conaway lands within the Yolo Bypass. The DEIR/EIS acknowledges the potential impacts from delayed planting, noting that changes in the seasonal timing of inundation of the Yolo Bypass could affect the cultivation of crops, particularly rice. This, in turn, could have adverse economic effects not only for Conaway, but also for the local economy. However, the DEIR/EIS includes no further analysis of these potential impacts. The DEIR/EIS, therefore, does not adequately address how increased inundation conflicts with existing, permitted agricultural uses and may be so economically damaging as to effectively convert portions of existing farmland to a non-agricultural use

Response

See Response to Comment IN06-1 and Master Response 4.

Comment IN06-9

Comment

Reductions in crop yields are a driving factor in agricultural revenue losses due to flooding in the Yolo Bypass. Inundation during the months when the land is being prepared for planting and during the growing season can result in significant losses to crop yield. The months of March, April, and May are critically important in the rice farming season, as this is the time in which preparation and planting of the field begins. The period of inundation proposed under Alternative 1 would end on March 15 each year. It takes at least 45 days to drain the land from the last day of inundation. An additional 30 days are needed to allow for groundwork. If inundation ends on March 15, planting would begin around June 1. However, ideal planting time is May 5 through

May 15, and the last possible date for planting is approximately June 10. Based on Conaway's experience farming rice, the delay in planting under Alternative 1 could lower crop yields by 10 to 20 percent, which, at today's price of approximately \$19 per sack, would result in a gross reduction of income for Conaway of \$150 to \$300 per acre, along with reduced revenue to Yolo County and the local economy.

A 2013 report written jointly by representatives of the University of California, Davis, Yolo County, and Douglas Environmental, quantified agricultural impacts of flooding in the Yolo Bypass under a variety of possible flooding scenarios in order to evaluate future projects connected to the Bay Delta Conservation Plan. (Howitt et al., *Agricultural and Economic Impacts of Yolo Bypass Fish Habitat Proposals* (Apr. 2013) p. 1, attached as Exhibit B.) The study was based on a comprehensive economic, agronomic, and geo-referenced dataset of agricultural production in the Yolo Bypass between 2005 and 2009, and found that flooding with a flow of 6,000 cfs through March 24 would result in total annual losses to the Yolo County economy - excluding other substantial costs associated with infrastructure maintenance and repairs - of over \$1.7 million. (Id. at iii, 22.) By comparing earlier and later flooding end dates, the study illustrated that flooding of the Yolo Bypass later into the planting season has a real and quantifiable impact on the local agricultural economy.

The study expressly excluded a quantification or discussion of management difficulties and other challenges which would likely accompany changes to inundation periods and frequencies. (Id. at p. 40.) The DEIS/DEIR addresses potential increases to bank loan rates, but downplays the likely inability of agricultural tenants to acquire production loans altogether due to increases in production risks resulting from changes in flooding frequency and duration. Furthermore, the DEIR/EIS should recognize that farmers within Conaway Ranch are likely to experience greater difficulty in obtaining crop insurance as flooding on the land increases and they may be subject to higher insurance premiums. All of these reasonably foreseeable economic impacts threaten the sustainability of agriculture on Conaway Ranch.

The potential reduction in agricultural yields in addition to increased costs should be analyzed in the DEIR/EIS in greater detail. Conaway is available and willing to discuss such impacts, and potential Project modifications and mitigation, further with the Lead Agencies to ensure the proposed Project does not result in unintended significant adverse impacts to agricultural resources, or a significant negative economic impact to Conaway or Yolo County.

Response

The time required for fields to dry includes the time in the hydraulic model plus an additional 34 days. The consideration of 34 days is based on planting data from users within the Yolo Bypass and is documented in Appendix K1 (formerly Appendix J1).

The 2013 report was the report that documented the development of the Bypass Production Model, which is used to analyze impacts of the action alternatives. Appendix K1 documents the model. The initial application in 2013 did not have detailed hydraulic modeling for the potential projects, so the model assumed that inundation would occur during the entire winter period. This EIS/EIR has detailed hydraulic modeling that indicates the specific timing and extent of increased inundation, and this modeling was used as the basis for BPM. The previous analysis indicated a greater potential for impacts because it used conservative assumptions, but this

EIS/EIR has improved the information that is used as the input for BPM to provide improved results.

See also Response to Comment IN06-1 with regard to landowner compensation and LA03-28 with regard to crop insurance. Please also see Master Response 4: Impacts to Landowners and Other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment IN06-10

Comment

III. Introduction of New Species and Impacts to Existing Species' Habitat from Changes in Inundation Patterns Would Place Additional Burdens on Conaway

As stated in the DEIR/EIS, changes in the inundation pattern of the Yolo Bypass could reduce habitat for waterfowl and other terrestrial species, as well as disturb fish species and their habitat. However, the DEIR/EIS omits a discussion of impacts to landowners within the project area resulting from changes in species and habitat management.

The introduction of additional aquatic and terrestrial endangered species from increased inundation on Conaway Ranch within the Yolo Bypass would require additional coordination by Conaway and RD 2035 personnel with resource management agencies, even for routine operations and maintenance activities. Changes in inundation periods and frequencies create a risk of "take" violations under the federal and ESAs due to the introduction of protected species on the property or the creation of new risks to protected species. Conaway could be required to obtain permits to complete maintenance activities associated with increased flooding because of potential impacts to species. The introduction of winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, North American green sturgeon, and split-tail and fall-run Chinook salmon could also restrict the times when the operations and maintenance activities could take place.

Additionally, changes to inundation and resulting challenges in delivering water to fields, or to drain water from fields, could impact existing conservation easements on privately owned land for a variety of terrestrial species, including the giant garter snake, Swainson's hawk, and tricolored blackbird. (DEIR/EIS, p. 9-8.) So, while the Project aids conservation efforts for some species, it may hinder conservation efforts for others. Conaway must not be forced to bear increased regulatory or cost burdens associated with the Project. In order for the Project to move forward Conaway will need to receive adequate regulatory assurances under both the federal ESA and CESA, which could include formal consultation and issuance of a biological opinion under ESA Section 7, a Safe Harbor Agreement, and Enhancement of Survival Permit and state consistency determination, or other appropriate assurances.

Response

See Response to Comment IN06-1 and IN02-2.

Comment IN06-11**Comment**

Additionally, while the DEIR/EIS concludes that there will be no significant increase in the use of recreational facilities, it disregards the significant environmental and economic impact of the inverse: a substantial decrease in suitable duck hunting opportunities. As stated in the DEIS/DEIR, all proposed Project alternatives would impact waterfowl hunting opportunities due to the reductions in availability of shallow-flooded wetlands during the hunting season. This would impact private hunting clubs economically and may disincentivize such clubs from managing shallow-flooded wetlands. Changes in water levels can also alter the habitat suitability for migratory waterfowl that utilize Conaway Ranch, as different species of waterfowl prefer different water levels and water depth influences which species will utilize a particular area. The DEIS/DEIR does not analyze the potential significance of such impacts, but merely notes the uncertainty of the magnitude of these effects on individual private parcels. The conclusion that such impacts may vary within the Project area does not excuse the Lead Agencies from analyzing and mitigating known impacts likely to result from the proposed Project. Private property owners supporting waterfowl hunting opportunities in the Yolo Bypass, and the associated habitat, should not be left to invest their own resources in researching and addressing such widespread impacts independent from the ongoing Project review process.

Response

See Response to Comment IN06-1. Please also see Response to Comment SA01-16, LA03-21, LA03-118, and LA03-119 for information regarding wetlands, nesting, and foraging habitat. Additional information on the potential for lost hunting opportunities (and the potential qualitative financial impacts) has been added to Chapter 16.

Comment IN06-12**Comment****IV. Conclusion**

Conaway appreciates USBR and DWR's recognition of the unique opportunities available in the Yolo Bypass and on Conaway Ranch to restore and improve aquatic habitats with the cooperation of private property owners. As discussed above, the DEIR/EIS must recognize and fully mitigate the Project's potentially significant impacts to Conaway Ranch's agricultural and other resources. Conaway has already invested significant resources in reviewing and understanding the proposed Project, and the Lead Agencies must consider the heavy financial burden and regulatory risks that the proposed Project imposes on Conaway Ranch lands within the Project area if it is approved.

Response

See Response to Comment IN06-1. DWR and Reclamation look forward to discussing the issues raised in this letter in the context of landowner negotiations.

Comment IN06-13

Comment

Conaway invites further discussion of the comments provided in this letter and will gladly offer additional data, information, or insight regarding this effort. Conaway will continue to be engaged in the Project review process and requests to receive notice of all Project-related matters moving forward. On behalf of Conaway, thank you for taking time to accept and review our comments, and please do not hesitate to contact me to discuss this letter further.

Response

Reclamation and DWR will continue to reach out to stakeholders, including Conaway, through the rest of the implementation process.

Comment IN06-14

Comment

Exhibit A. Flood control easement held by Sacramento and San Joaquin Drainage District

Response

No response needed. Referenced document is attached to Comment IN06-2. Noted.

Comment IN06-15

Comment

Exhibit B. Agricultural and Economic Impacts of Yolo Bypass Fish Habitat Proposals, Prepared for Yolo County; Prepared by Richard Howitt, Duncan MacEwan, Cloe Garnache, Josue Medellin Azuara, Petra Marchand, Doug Brown, Johan Six, and Juhwan Lee, April 2013

Response

This report is the basis for the BPM modeling described in Appendix K1 (formerly Appendix J1).

Comment Letter IN07, Greg Kassis, Glide in Ranch Inc.

Comment IN07-1

Comment

The information in Chapter 13 greatly underestimates the project impact on private hunting clubs. The inundation estimates do not consider the amount of time needed to drain ponds down to shooting levels after levees emerge after each inundation. Shooting levels include getting pond

depths down to levels that can be safely waded and duck blinds can be bailed. Most leveed ponds are drained through a 30 inch diameter pipe controlled with a flash board riser or screw gate. Draining to shooting level requires 1 to 2 weeks after each inundation due to the time needed to drain water out of the drainage ditches and drain excess water in ponds through their water control structures.

Response

See Response to Comment SA01-4.

Comment IN07

Comment

The EIR (pages 13-27) states that the preferred alternative, Alternative 1, would result in an increase in inundation of up to 2 weeks on average for approximately half of the private hunting clubs. Due to the additional time needed to drain ponds to shooting depth, it appears that, on average, the impact could be closer to a month due to flooding solely from project operations. In years of multiple inundations, the impact would be even greater.

Response

See Response to Comment SA01-4.

Comment IN07-3

Comment

The EIR should analyze the annual range in additional flooding that affected clubs would experience. It appears to us, that in many years we would lose the bulk of the best part of the waterfowl season due to inundation caused by the project adding to normal flood flows. This concern is bolstered by examination of river heights at Fremont Weir (information from CDEC) during 2014 to 2018. Based on operation criteria in the draft EIR, open gates on the weir notch and flood flow over the weir would cause the Sacramento River water to flow into the Yolo Bypass for 61 days during November-January in 2014-2015, 50 days in 2015-2016, 82 days in 2016-2017, and 81 days in 2017-2018...in all years, a substantial portion of the waterfowl season.

Response

The lack of precise hunting club boundary data and the dispersion of the hunting clubs makes individual analysis impractical. The current analysis provides the best available analysis with the existing information on the private hunting clubs. In general, the Project alternatives would increase the inundation period between one and three weeks for the majority of the private hunting clubs, which is a 17 and 33 percent increase over existing conditions. Notably, the remaining portion of the private hunting clubs would not experience any increase in inundation overall, on average. More specifically, the increases in the duration of inundation for the majority of clubs, on average, would be one week for Alternatives 4 and 5, two weeks for Alternatives 1, 2 and 3, and three weeks for Alternative 6. See Master Response 4: Impacts to

Landowners and Other Users of Land. To the extent appropriate, discussions related to socioeconomic impacts and compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment IN07-4

Comment

The EIR should also consider the months in which the impacts would occur. The EIR seems to treat all months equally (p13-27 " a 4.1% reduction in hunting days would not be a substantial reduction...perhaps not substantial," but still significant). Generally, the December-January period provides the best hunting; so lost days during that period are more important than lost days earlier in the season.

Response

It is recognized that some periods may provide better hunting than other periods; however, the analysis utilizes the official hunting period as defined by CDFW that spans from October through January. Additionally, due to the differences in annual rainfall, greater specificity is not practicable.

Comment IN07-5

Comment

Additionally, effective marsh management would be inhibited by flooding in March. Ponds should be drained in March and April to promote growth and seed production of important waterfowl food plants like smartweed, water grass, and swamp timothy.

Response

See Response to NG04-27.

Comment IN07-6

Comment

The draft EIR doesn't explain how private duck clubs will be protected from project impacts. Project staff has indicated at public meetings (BDCP public meeting in West Sacramento, October 6, 2010, several Yolo Bypass Work Group meetings, and the EIR public comment meeting on January 18, 2018) that eminent domain will not be used, and that impacts will be restricted to willing sellers. The Glide In Ranch is not a willing seller. The measures that will protect Glide In Ranch and other "unwilling" landowners from being flooded by project operations need to be described and evaluated in the EIR. No where in the EIR does it explain how you are going to flow water over willing participants without affecting unwilling participants such as Glide In Ranch. How do you plan to mitigate the affect of flows over Glide In Ranch property? How do you plan to flow water over willing participants ground without

inundating Glide In Ranch at the same time? The mitigating factors need to be disclosed and included in the EIR.

Response

See Master Response 4: Impacts to Landowners and Other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment Letter IN08, Doug Brown, Lower Sacramento/Delta North Regional Flood Management Planning Group

Comment IN08-1

Comment

The Lower Sacramento/Delta North Region appreciates the opportunity to present comments on the Draft Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) for the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project (Proposed Project).

We appreciate the California Department of Water Resources (DWR) ongoing support for our Regional Flood Management Planning efforts. Through these efforts, the six local agency partners, which include Solano County, Yolo County, Solano County Water Agency, West Sacramento Area Flood Control Agency, Sacramento Area Flood Control Agency, and Reclamation District 2068, are able to identify potential issues of concern early in habitat restoration project planning and to work with DWR and the U.S. Bureau of Reclamation (Bureau) to identify locally-supportable solutions.

This letter was prepared by representatives of the six local agency partners (Partners) to express our joint comments on the Draft EIS/EIR. By their nature, these comments represent the broad interests of the Partners. However, the project has specific localized impacts that are of concern to individual Partners. For this reason, several individual local agencies may be submitting their own comment letters. The Partners fully support the need and desire for individual local agencies to submit separate comment letters.

The following are the Partners' comments on the Draft EIS/EIR and the Proposed Project:

Regional Programmatic Integration and Governance – The Proposed Project is just one of the many habitat restoration and flood risk management projects being proposed in the Yolo Bypass/Cache Slough Complex. Many of these projects are being proposed as components of EcoRestore, the 2008 and 2009 Biological Opinions, the Central Valley Flood Protection Plan Conservation Strategy, and the Delta Conservation Framework. The Partners believe strongly that these projects cannot be viewed in isolation due to the adverse cumulative effects that can occur. The Partners developed a Corridor Management Framework in February 2015 to specifically address the integration of multiple projects and are in the process of adopting a Memorandum of Agreement to further these integration efforts. Any restoration projects within the Upper Yolo Bypass directly affect users in the Lower Yolo Bypass/Cache Slough Complex. Therefore, it is imperative that the Proposed Project's improvements in the Upper Yolo Bypass be implemented in the context of a larger program that meets the needs of all affected parties.

This includes addressing the governance, flood control, agricultural sustainability, water quality and supply assurances, infrastructure, land use, and recreational components important to the Partners. The Partners strongly encourages DWR and the Bureau to initiate conversations with the regional representatives regarding the development of governance structures for these projects that meaningfully integrate local agencies as partners in the decision-making and adaptive management processes.

Response

The cumulative impacts analysis considers past, present, or future projects that are reasonably foreseeable and have (or could) contribute to cumulative effects with the alternatives. Chapter 3 defines reasonably foreseeable projects as projects that are currently under construction, approved for construction, or in final stages of formal planning. Projects under consideration in the southern Yolo Bypass or Cache Slough complex that meet these criteria are included in the cumulative analysis, as described in Chapter 3.

Reclamation and DWR have been, and continue to be, committed to meaningful stakeholder involvement during development of the Project, environmental review, and implementation. The final decision on the alternative to implement must be made by Reclamation and DWR.

Comment IN08-2

Comment

Loss of Agricultural Productivity –The Draft EIS/EIR demonstrates that the viability of agricultural lands within the Project’s inundation footprint will be increasingly uncertain following implementation. That uncertainty arises from potential field preparation and planting delays which, in turn, can cause or contribute to reduced yields and (possibly) changes in crop selection. Other potential consequences of increased Yolo Bypass inundation include the loss of preventative planting insurance and reduced availability of farm loans, either of which would jeopardize the continuation of agriculture on affected lands. Although the Partners appreciate the inclusion of conservation easement purchases for the conversion of prime farmland, unique farmland, and farmland of statewide importance included in Mitigation Measure MM-AGR-1 for Alternative 4, we are concerned that the significant and unavoidable impact conclusion following mitigation implementation is indicative of the inadequacy of this mitigation approach. We strongly encourage DWR and the Bureau to consider a broader agricultural mitigation approach that fully offsets the loss of agricultural productivity anticipated with project implementation including the direct impacts on landowner and/or grower agricultural revenue; indirect impacts on farm employees, farm-related businesses, and their employees; induced impacts on the broader economy (value-added losses); and reductions in local tax and assessment revenues. Developing such an approach would provide the basis for addressing agricultural productivity impacts programmatically in a way that would facilitate implementation of the cumulative restoration and flood improvement projects being planned in the region.

Response

See comment response LA03-29. Also see Master Response 4: Impacts to Landowners and Users of Land. Other Users of Land. To the extent appropriate, discussions related to socioeconomic

impacts and compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Additionally, the determination that there are significant and unavoidable impacts notwithstanding proposed mitigation strategies does not mean that proposed mitigation for environmental impacts is inadequate. It more likely reflects the reality that no reasonable mitigation measures can provide full mitigation.

Comment IN08-3

Comment

Recreational Impacts Within State Wildlife Areas – The Proposed Project’s construction and long-term sediment removal activities will substantially disrupt ongoing recreational uses within the Fremont Weir Wildlife Area (FWWA). The increased inundation in the Yolo Bypass associated with project implementation would also disrupt recreational uses in the FWWA as well as in the Sacramento Bypass Wildlife Area and the Yolo Bypass Wildlife Area (YBWA). Within the YBWA, the increased inundation would reduce the ability of the Yolo Basin Foundation to provide their invaluable wildlife education program to youth in the region. We request that the Bureau and DWR work with local land owners, the Yolo Basin Foundation and Yolo County to identify recreational access and educational enhancements that can be implemented to offset the unavoidable impacts in the Yolo Bypass associated with project implementation. This recommendation is consistent with the 2017 Update to the Central Valley Flood Protection Plan, which encourages the inclusion of “Enriching Experiences” and multi-objective opportunities as an intended outcome of flood system improvements.

Response

The impacts to recreational and educational uses of the YBWA and FWWA are analyzed in Chapter 13, *Recreation*, which has been updated to include a CEQA impact statement and conclusion for the loss of recreational opportunities due to a reduction in access and/or lands available for education, wildlife viewing, and hunting (see Response to Comment SA01SA01-4). See also Master Response 4: Impacts to Landowners and Other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process, which would also address the societal benefits or impacts discussed in the 2017 Update to the Central Valley Flood Protection Plan.

Comment IN08-4

Comment

Barker Slough Pumping Plant Water Quality Impacts – Increasing the volume of water within the lower Yolo Bypass prior to and after storm events will reduce the ability of urban and agriculture storm runoff from the local watershed within the Cache Slough Complex to discharge into the western Delta. As a result, the poor quality water that discharges into these sloughs will become further degraded for longer periods of time. Because the Barker Slough Pumping Plant is located within this Complex, the degraded water quality will require increased treatment to meet

the water quality requirements for the municipal and industrial users supplied by the Solano County Water Agency. The Final EIS/EIR needs to specifically evaluate the project's water quality impacts in the Cache Slough Complex and identify how water quality impacts at the Barker Slough Pumping Plant will be minimized.

Response

In the North Bay Aqueduct Barker Slough Watershed Water Quality Phase I Report (July 1998), storm monitoring was performed to determine if the Sacramento River system (including Yolo Bypass) affects the Barker Slough Pumping Plant during high flow events. Results indicate that sharp increases in organic carbon at sites closest to the Bypass were never observed. From data gathered only slight changes were observed, and it is difficult to conclude if flooding of the Bypass affected the water quality at the Pumping Plant. Under the alternatives, the relatively small increases in flows under flood events are not expected to result in additional impacts to water quality at the Barker Slough Pumping Plant.

Comment IN08-5

Comment

In addition to the Proposed Project, the Yolo Bypass is the focus area for multiple other ecosystem restoration initiatives. The Partners are very concerned about the cumulative effect these habitat restoration projects can have on the operation and maintenance of existing agricultural and municipal water diversions in the Lower Yolo Bypass/Cache Slough Complex due to increased attraction and presence of listed species and the potential for increased exposure to water intakes that could lead to new restriction on beneficial water supply uses.

Response

Endangered fish species are currently present in the Lower Yolo Bypass/Cache Slough Complex, and the water diversions are subject to the protections of the Endangered Species Act. Response to Comment IN02-2 responds to concerns that increased fish could cause concerns for landowners within the Yolo Bypass, and this response is also applicable to water supply diversions within the Lower Yolo Bypass/Cache Slough Complex.

Comment IN08-6

Comment

In addition, storm water drainage within this watershed may be adversely affected and subject to increased regulation. The Draft EIS/EIR should further evaluate these cumulative impacts in the appropriate sections of the document.

Response

The Yolo Bypass two-year exceedance event is roughly 60,000-80,000 cfs and changes in water surface elevations as result of the Project for this flow event are negligible. As such the drainage

within the watershed will not be adversely affected or subject to increased regulation due to the Project. See Response to Comment IN02-2.

Comment IN08-7

Comment

Impacts on Water Rights Holders – The Partners are concerned that the introduction of new listed fish species and/or increase in the presence of listed species in the Tule Canal/Toe Drain, and ultimately in the Cache Slough Complex, will adversely affect the ability of water rights holders to withdraw the water necessary to manage wetlands and agricultural operations consistent with historic practices. The Final EIS/EIR should address what assurances can be put into place to ensure that existing water rights holders are not harmed by project implementation. The Partners encourage DWR and the Bureau to work directly with land owners and Reclamation Districts to ensure all potential water supply system impacts are appropriately mitigated.

Response

See Response to Comment IN02-2 and Master Response 4.

Comment IN08-8

Comment

Haul Truck Traffic Impacts – The Partners are concerned about the lack of analysis of the impacts caused by the substantial truck trips needed to haul excavated sediments from the project site during construction and subsequently for long-term site operations and maintenance. These truck trips have the potential to generate significant noise and air quality impacts for rural residents along the haul routes. The level of heavy truck traffic anticipated on rural county roads that are clearly not designed to accommodate such use could be so destructive as to make them unusable by local residents and by emergency vehicles. More detailed information regarding these truck trips and their direct effects on local residents needs to be included in the document.

Response

See Response to Comment LA03-40 regarding traffic impacts from sediment removal. Mitigation Measures MM-TRAN-1 (Periodic Inspection and Minor Repair of Roadways) and MM-TRAN-2 (Establish a Road Repair Agreement with Yolo County) identified in the EIS/EIR would maintain and repair all of the roadways that are expected to be used and deteriorated by project-related traffic.

See Response to Comment LA03-46 regarding noise impacts and Response to Comment LA03-180 regarding air quality impacts from sediment removal.

Comment IN08-9

Comment

Impacts on Cultural Resources – The Partners are concerned that a cultural resources inventory has not been conducted within major portions of the disturbance areas for the project alternatives particularly considering the area’s cultural sensitivity. It is unclear why the entire area of potential effect has not been surveyed, considering the initial cultural resource investigations for this project commenced in 2014. It is also unclear why these surveys are being deferred to after completion of the environmental review process. If the unevaluated areas are assumed to contain prehistoric sites that are large and rich in material remains, including human burials and associated ornaments and beads, as acknowledged under Impact CULT-2, then it is inappropriate to defer the evaluation of these resources until after completion of the environmental review process. Complete surveys of the sensitive cultural resources located within the area of potential effect should be conducted and a full assessment of the project’s effects on these resources should be prepared and circulated for public comment prior to finalizing the environmental document. The Partners encourage the lead agencies to coordinate closely with affected Native American Tribes regarding the project’s effects on Tribal cultural resources, consistent with the requirements of the National Historic Preservation Act and AB 52.

Response

See Response to Comment LA03-26. DWR and Reclamation have conducted coordination with the tribes before and during the public review process. Both agencies have committed to continuing consultation with the tribes throughout the next steps. The Notice of Preparation for the Project was dated March 4, 2013 whereas AB 52 did not go into effect on July 1, 2015. Therefore, the coordination processes required under AB 52 are not applicable. DWR and Reclamation have conducted coordination with the tribes before and during the public review process. Both agencies have committed to continuing consultation with the tribes throughout the next steps and will comply with all requirements established by the National Historic Preservation Act.

Comment IN08-10

Comment

While the Partners understand the need to provide habitat for endangered fish species, we believe that DWR and the Bureau can reach this conservation goal with solutions that do not undermine invaluable existing environmental and agricultural resources, as well as educational and recreational opportunities, in the Yolo Bypass. The Partners are committed to working with DWR and the Bureau to address the issues identified above and we appreciate the opportunity to provide these comments on the Draft EIS/EIR.

Response

Reclamation and DWR will consider the comments on the environmental impacts of the alternatives received on the Draft EIS/EIR when making a decision on the alternative to

implement. Reclamation and DWR are committed to meaningful stakeholder involvement and appreciate thoughts and feedback on the alternatives, but the final decision on the alternative to implement will be made by Reclamation and DWR.

Comment Letter IN09, Selby Mohr, Mound Farms and Sweetwater Company

Comment IN09-1

Comment

I am providing these comments as President of the Board of Directors of Mound Farms, and Secretary of the Board of Directors of Sweetwater Company (a Mutual Water Company). Both of these entities are located, operate, and maintain facilities in the lower Yolo Bypass of Yolo County. As mentioned in the January presentation which I attended, this is the start of the planning and meetings related to the development of this Project. My comments are very general and intended to be considered as the planning process evolves and moves forward, and I won't be attempting to be extremely detailed at this time. Therefore I am providing "bullet-point" type comments for your consideration. I also understand that most, if not all, of the landowners in the Yolo Bypass have a flood easement over their properties. I understand that flood waters in the lower Yolo Bypass may be fed into the bypass from several sources including Cache Creek, Putah Creek, the Sacramento River through the Fremont and Sacramento Weirs, among other potential direct and indirect sources. Properties in the lower Yolo Bypass can be expected to flood in situations where the flood managers determine that implementation of weir operations is necessary to protect areas east of the Sacramento River or other areas that are threatened by potential flooding. The proposed Project is in addition to and completely separate from the flooding of the Yolo Bypass to protect property and lives. With all that in mind, please consider the following;

What are the projected impacts to the points of diversion along the new and more frequently flooded areas (which may be under water for longer periods) in the toe drain or other ditches from which we divert water for our operations?

Response

The impacts of more frequent and prolonged flooding events were assessed per land use type for the whole Yolo Bypass in Chapter 11 for agriculture and Chapter 13 for recreation. Individual landowner impacts were not evaluated but would be considered during right-of-way or Project easement discussions.

This comment and most of the other comments in this Comment Letter, PM11, relate to compensation issues. Impacts relating to compensation to landowners or users of land are not environmental impacts and do not need to be discussed in the EIS/EIR. Discussions relating to just compensation to be paid to specific landowners will take place outside of the CEQA/NEPA process. See Master Response 4: Impacts to Landowners and Other Users of Land.

See Response to Comment IN06-1.

Comment IN09-2

Comment

Will the operators of the project be establishing a reimbursement account for the purpose of reimbursing the water rights owners/operators and water diverters for the increase in maintenance costs due to siltation or erosion to their facilities?

Response

See Response to Comment IN09-1 and Response to Comment LA03-59.

Comment IN09-3

Comment

What is the projected lost income due to the increase in flooding by the operation of the weir for increased water/fish passage?

Response

See Response to Comment LA03-37. See also Response to Comment IN09-1.

Comment IN09-4

Comment

Is there an account being established to reimburse the owners/operators for lost income or a lost potential for renting out property? This needs to be considered from the aspect of agricultural operations, hunting operations, access and maintenance operations for habitat/restoration activities, and all the other associated activities which currently (or are planned to) take place in the Yolo Bypass.

Response

See Response to Comment IN09-1.

Comment IN09-5

Comment

What are the plans to replace the lost income or recreational enjoyment to wildlife/waterfowl hunting club owners/operators if their operations must be discontinued or are limited in any way because of the frequent flooding impacts do to the operation of the weir for fish passage?

I believe that these are good questions to address and start the serious and detailed dialogue between the project proponents, persons interested in the Yolo Bypass and the landowners in the Yolo Bypass. I look forward to continued participation in the process.

These questions and any tone of the letter, should not be construed to constitute an opinion about the project. Rather these comments and questions are being provided to assist in the development of the project and the evaluation of all the options and alternatives.

Response

See Response to Comment IN09-1.

Comment Letter IN10, Gus Margarite, Rising Wings Duck Club

Comment IN10-1

Comment

Ben...just an FYI concerning a study that is being conducted by the California DFW as it relates to increasing the numbers of salmonids in the Sacramento River system. This article was recently posted in the Western Outdoor News issue dated 2/9/18. Thought you might be interested.

Response

It is assumed that the article being referenced in the comment is related to salmon hatchery practices in the Central Valley. Comment does not address the adequacy or accuracy of the EIS/EIR; therefore, no additional response is warranted. See Master Response 1: Fish Benefits, on the value of this Project with regard to increasing salmonid numbers in the Sacramento River System.

Comment IN10-2

Comment

Mokelumne Hatchery has the answer for stable, consistent salmon runs. Public information recently released on smolt survival from the Sacramento River system details how smolts should be released in the future, if California ever wants to get consistent and steady salmon returns. The subject here is a return of salmon smolts from hatcheries in the state, and why one hatchery - the Mokelumne River Hatchery - has a return of twice as many smolts as any of the other hatcheries. The manager of the Mokelumne Hatchery, Bill Smith, has been thinking out of the box for years, and his methods of returning smolts to California waters have resulted in tremendous survival of smolts. The figures we're talking about here are 2-year old ocean nose tag recoveries; Three year old salmon numbers will be available next year. The Mokelumne River Hatchery is the top producer of all the other hatcheries on the Sacramento River system. The Mokelumne River hatchery, one of the smallest in the system produced nearly 48 percent of all the ocean recoveries of 2-year old salmon of all the state's Sacramento River system hatcheries. Why? Very simply, because of barging and trucking smolts to a safer environment for release, resulting in higher survival and higher returns. Let's look at just one example: A total of 100,000 smolts were dumped into rivers at hatchery sites, and 100,000 smolts were planted into the delta by barge from the Mokelumne: 28 were recovered from the river releases by other hatcheries and 497 were recovered from the Delta barge release from Mokelumne. Straying is a big problem,

because there are no hatcheries on the main Sacramento River itself. Sure, the Coleman Hatchery is near the river, but it doesn't use water from the Battle Creek, which is only 1/40th of the main Sacramento River flow. The fish can't "read" the Battle Creek scent in the river when returning if the hatchery was on the Sacramento River itself, there would be very little straying or returning salmon and they would "find their way home." Imprinting of river "smell" occurs during the first 3 months of hatching for salmon smolts. A good example is that of the 480,000 smolts from the Mokelumne Hatchery, trucked to the Half Moon Bay net pens for raising 1300 returned to the Mokelumne Hatchery (where they were born and first raised) as 2 year old jacks. Let's face some facts here about Sacramento River and tributary river salmon: First, the vast majority of historical salmon spawning areas on the rivers are no blocked by dams. And those dams will never be removed! Second, there are not enough spawning areas in the Sacramento River or the tributaries to make up for the hundreds of miles of lost spawning grounds behind the dams. The only other alternative is on river salmon hatcheries to make up for the loss of in river spawning, hence the construction of the hatcheries; For the sole purpose or making up for the loss of those naturally spawning salmon. And, as the results from trucking and barging from the Mokelumne Hatchery have proven those are the methods needed for high survival rates from all of the hatcheries on the Sacramento River and its tributaries. They should all turn to barging and trucking and stop the wasteful planting of smolts directly in the river, since we know it is now a losing proposition. In short, we would have a stable and certain returning salmon run to all of our valley rivers, in two to three years. If we had hatcheries on the main stem of the rivers they service and after imprinting, the smolts were barged and trucked to a safe environment prior to release. Getting more salmon is just that simple. But that's something that the agencies just don't understand. Especially when they still actually believe there are "wild" spawning salmon in the Sacramento Valley system, even after well over 100 years worth of hatchery salmon released into the Sacramento River that have completely mixed with what few "wild" salmon still existed. To some fishery managers it's a big deal to have "wild fish," but the truth of the matter now is that even salmon that still spawn in the gravel are no longer entirely the same genetic makeup of "wild" salmon from 100 years ago. But let's note: All of the current salmon in the Sacramento River are from the original native river stocks, genetically. But does anyone really care anymore? There's no way to bring back those "wild" fish, and the current salmon aren't that much different. They are still released as smolts, they still survive two or three and sometimes 4 or 5 years of living in the ocean and then returning to the river of their births. Let's dump the rhetoric and get on with the lawfully required mitigation requirements of our hatcheries. Let's truck them and barge them to go release sites after they have been imprinted in the waters of their home rivers, so commercial and recreational anglers can, once again, have stable, consistent large salmon runs in our rivers.

Response

Comment does not address the adequacy or accuracy of the EIS/EIR; therefore, no additional response is warranted. See Master Response 1: Fish Benefits on value to this Project with regard to increasing salmonid numbers in the Sacramento River System.

Comment Letter IN11, Lisa Weger, Weger Interests, Ltd***Comment IN11-1*****Comment**

Our family has owned land in the Yolo Bypass for over 55 years and we are still active in agriculture. The EIR is defective in that it fails to address in meaningful and thorough terms one of the most important challenges to this proposed project, namely, the interests and impacts of this project on those people who own the land in the Yolo Bypass.

Response

See Master Response 4: Impacts to Landowners and Other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land would occur outside of the NEPA/CEQA process.

Comment IN11-2**Comment****SECTION 4. HYDROLOGY, HYDRAULICS AND FLOOD CONTROL**

This Section purports to undertake an extensive analysis of the various proposed Alternatives which by your own admission have been modeled using the “CalSim II modeling... which is inappropriate for flood control analysis” First, I think it is reasonable to question the results of such modeling.

Response

As described in Chapter 4, while the monthly timestep used by CalSim II is inappropriate for flood control analysis, the results of re-operation of the CVP and SWP, as a result of the alternatives, can be evaluated very effectively. From the perspective of a flood wave routing, the maximum potential increase in flow into the Yolo Bypass would be limited by the increased capacity of the diversion structure, so any increase in flood flow relative to the basis of comparison would be limited to 3,000 cfs to 12,000 cfs, depending on the alternative. Potential changes in flood flows resulting from re-operation of upstream projects could be much greater, so impacts were evaluated accordingly.

Comment IN11-3**Comment**

But more importantly, implicit in the entire analysis undertaken in this Section is that most of the land in the bypass floods every year. This is simply not so. Most land floods occasionally and may flood more rarely since California appears to be experiencing a dry period. Therefore, undertaking a project that creates annual flooding is doing substantial and irreparable harm to the

Yolo Bypass Landowners. THIS ISSUE WAS NOT ADEQUATELY ADDRESSED IN THE EIR.

Response

See Response to Comment LA04-26. The evaluation does not imply the bypass floods every year. Appendix G6 shows the recurrence of bypass flooding by month, and in no month does flooding occur in more than 50 percent of years under either the 2030 or 2070 conditions. Furthermore, impacts are evaluated in a comparative manner against existing conditions and the No Action Alternative and climate change and sea level rise is included within the evaluation. To the extent appropriate, discussions related to compensation to landowners or users of land would occur outside of the NEPA/CEQA process.

Comment IN11-4

Comment

The other issue that has not been adequately addressed is what impact lowering the Fremont Weir by 14 feet to allow a constant flow into the bypass might have upon flood events. It stands to reason that if somewhere between 6,000 and 12,000 cfs is flowing into the Bypass all winter and a flood event occurs, the repercussions to the landowners will be more severe and prolonged. THIS ISSUE OF RAISING THE BASELINE OF WATER AND ITS IMPACT ON LARGE FLOOD EVENTS WAS NOT ADEQUATELY ADDRESSED IN THE EIR.

Response

See Response to Comment IN11-3.

Comment IN11-5

Comment

Moreover, the potential impacts to neighboring landowners outside the bypass (whose lands can flood in large water events) need to be considered and addressed. THE IMPACTS TO AGRICULTURAL LANDOWNERS OUTSIDE THIS BYPASS WAS NOT ADEQUATELY ADDRESSED IN THE EIR.

Response

Agricultural landowners outside the Yolo Bypass would not be directly affected by construction impacts or increased inundation. They would have the potential to be affected by groundwater seepage, increased traffic, air quality emissions, and noise. These potential impacts are addressed in the EIS/EIR in Chapters 16, 17, 18, and 20, respectively.

Comment IN11-6**Comment****SECTION 11: LANDUSE AND AGRICULTURAL RESOURCES.**

In section 11 of the EIR you acknowledge the historical, practical and legal importance of farmland to Yolo County. As stated, the bypass contains almost 7% of the best farmland in Yolo County. In your charts you delineate the diverse types of Ag that are undertaken in the Bypass. However, in the discussion in Sec 11.3.3.2.2 (and repeated as you address each alternative) you assume that every rancher or farmer “plants” a crop (presumably rice) and that crop must be planted by June 1st. As a rancher we can graze upon our land most months of the winter. We do not plant. We hope for light winter rains and sunshine and the clover and other grasses grow of their own volition.

Although you have listed many forms of agriculture in the maps describing the activities in the bypass, the analysis repeatedly makes the assumption that all landowners plant at a certain time and if you can just dewater the fields on a timely basis, this project and landowners can co exist. **THIS CONCLUSION IS DEFECTIVE AND NAIVELY MYOPIC. A BROADER ANALYSIS OF THE IMPACTS OF THIS PROJECT ON THE DIVERSE TYPES OF AGRICULTURE UNDERTAKEN IN THE BYPASS INCLUDING RANCHERS IS NOT ADEQUATELY ADDRESSED IN THE EIR.**

Response

Appendix K1 (formerly Appendix J1) provides more information about how the BPM model analyzes effects to crops as a function of planting dates and crop types. Each crop, including pasture, has a curve that shows how yield (and profitability) vary depending on inundation.

Comment IN11-7**Comment****COMPENSATION TO LANDOWNERS.**

If this project proceeds there will be irreparable damage to many landowners. **THE EIR MUST ADDRESS HOW THE PROPONENTS OF THIS PROJECT PLAN TO COMPENSATE DAMAGED LANDOWNERS FOR THE DIMUNITION IN THE VALUE AND USE OF THEIR LANDS.**

Response

See Master Response 4: Impacts to Landowners and Other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land would occur outside of the NEPA/CEQA process.

Comment IN11-8

Comment

One last comment. I noted the list of people who contributed to this project. There are civil engineers, biologists, hydrologists and numerous other types of scientists. There is not one representative from Agriculture and yet this project is going to impact thousands and thousands of acres of Ag land. It does seem you should have had experts who understand Ag to help you understand the impacts created by your proposal.

Response

Chapter 24 summarizes the consultation and coordination efforts that have occurred during development of the Project. This included establishing a technical team focused on land use and agricultural issues who confirmed land uses and reviewed agricultural impact modeling and analysis. Additional landowners and stakeholder coordination was solicited through the Yolo Bypass Fisheries Enhancement Planning Team, Value Planning team, and Yolo Bypass Biological Opinion Working Group. Reclamation and DWR are committed to continuing to work with stakeholders and appreciate their willingness to do so.

Comment Letter IN12, M. Reinhard

Comment IN12-1

Comment

With more area flooded and flooding perhaps a longer time and into warmer weather, what will be the effect on mosquito populations? Historically, mosquito-borne diseases have been a serious problem in the Central Valley (Western Equine Encephalitis, West Nile, etc.) They affect humans, wildlife, and domestic animals. Have control districts been consulted? State and local health departments?

Response

See Response to Comment NG04-52.

Comment Letter IN13, Charles Russell

Comment IN13-1

Comment

I have reviewed the draft EIR for this project, and there are some issues that I find confusing, and others that I think misrepresent the situation as it relates to the educational uses of the Yolo Bypass Wildlife Area (YBWA). I will use Alternative 1 in my discussion, but similar issues occur with each of the alternatives.

Please note that I am a docent with the Yolo Basin Foundation (YBF), and I work with the Discover the Flyway school program. This program introduces grade-school-aged children to the wetland area. I'm always amazed by the number of children who say that their trip to the wetland is the first time that they have ever "been in nature". You really should see how excited the students become when they see the birds, animals and plants that we come across in our tours of the wetlands.

I would also like to point out that on those days that we are not allowed to access the YBWA, the alternative sites that are available to us cannot compare. These other areas don't have the same volume and diversity of wildlife as we find in the YBWA.

Duration of Inundation vs. Days Closed Due to Inundation

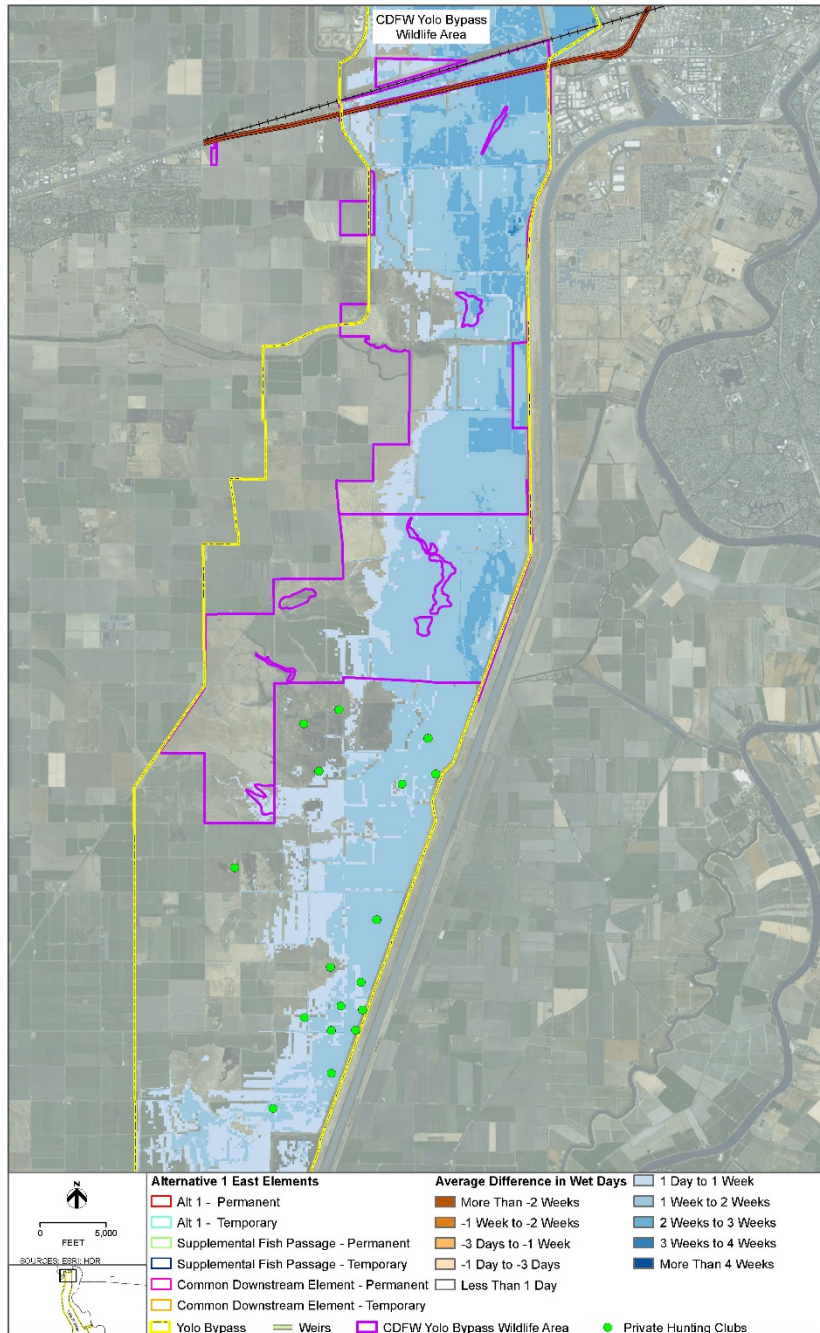
Table 13-3 of the EIR represents the "changes in duration of Inundation" due to the changes in the structure of the weir. The two right columns reference the YBWA, and show that there will be a significant increase in the number of days of inundation over a significant number of acres. For example, 42% of the acres will be inundated an additional one to two weeks. To me, this says that there will be a significant amount of additional time when the land is under water, and not available to the YBF educational programs.

Table 13-3. Alternative 1 Changes in Duration of Inundation (in Wet Days) at FWWA, SBWA, and YBWA

Average Difference in Duration of Wet Days	Alternative 1 FWWA (acres)	Alternative 1 FWWA (percent)	Alternative 1 SBWA (acres)	Alternative 1 SBWA (percent)	Alternative 1 YBWA (acres)	Alternative 1 YBWA (percent)
More than -2 weeks	6.1	0%	10.0	3%	0.0	0%
-1 to -2 weeks	15.7	1%	0.3	0%	0.0	0%
-3 days to -1 week	147.3	10%	0.1	0%	0.0	0%
-1 day to -3 days	644.7	44%	0.6	0%	0.2	0%
No change	101.1	7%	47.4	13%	2707.7	16%
Less than 1 day	423.5	29%	43.2	12%	3260.5	19%
1 day to 1 week	20.3	1%	16.4	5%	1524.7	9%
1 week to 2 weeks	10.3	1%	153.5	43%	7005.2	42%
2 weeks to 3 weeks	29.7	2%	77.8	22%	2263.1	13%
3 weeks to 4 weeks	42.9	3%	10.7	3%	8.6	<1%
More than 4 weeks	19.5	1%	0.0	0%	0.0	0%
Total	1,461	100%	360	100%	16,770	100%

Key: FWWA= Fremont Weir Wildlife Area; SBWA= Sacramento Bypass Wildlife Area; YBWA= Yolo Bypass Wildlife Area

Along with this you have Figure 13-6, which shows a map of the YBWA and the areas that will see additional days of inundation. I have annotated this figure to show the area that the Discover the Flyway educational program uses, which is at the northwest corner of the YBWA. As you can see, this area is the most heavily affected by the additional flooding.



Key: CDFW = California Department of Fish and Wildlife

Figure 13-6. Alternative 1 Location and Change in Frequency of Inundation (in Wet Days) at the CDFW Yolo Bypass Wildlife Area

However, in the discussion of this information, Table 13-4 is introduced. The conclusion here is that during the October to May time period (when the educational program is offered), there will only be an additional 5.2 days when the YBWA will be closed?

Table 13-4. Alternative 1 Changes in Number of Days the Yolo Bypass Wildlife Area is Closed due to Inundation.

Scenario	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Total (Oct-May)	Total Waterfowl Hunting Season (Oct-Jan)
Existing Conditions	0.0	0.0	0.9	5.3	5.7	7.0	3.4	0.7	23.0	6.2
Alternative 1	0.0	0.0	1.7	8.6	6.6	7.3	3.4	0.7	28.2	10.3
Difference	0.0	0.0	0.8	3.3	0.9	0.3	0.0	0.0	5.2	4.1

Key: Apr = April; Dec = December; Feb = February; Jan = January; Mar = March; Nov = November; Oct = October

This does not make sense. I cannot see how to reconcile the charts that talk about additional weeks of inundation with the chart that talks about a small number of days of closure.

The EIR's conclusion that the modifications to the weir would have no significant effect on the educational uses of the YBWA appears to contradict the information provided about the number of days of inundation

Response

YBWA is fully closed when the water level exceeds 12 ft. at Lisbon Weir. When Lisbon Weir exceeds 8.5 ft and 10 ft there are partial closures within YBWA, but the YBWA as a whole does not close. The wetted area figures are showing the increased inundation durations regardless of water level so some of the increased periods of inundation would not reach a level at Lisbon Weir that would result in a full closure of YBWA.

Comment IN13-2

Comment

YBWA Closures Depend on the Weir, Not Inundation

This project involves the lowering of a portion of the Fremont Weir to allow additional water into the Yolo Bypass. The conclusion of the EIR is that there won't be a significant number of days when there is enough flooding to close the bypass.

If you look at the current configuration of the Fremont Weir, the current crest is at 32 feet.

Using Alternative 1 as an example, water would flow through a notch in the Fremont Weir that would be at 14 feet. This is 18 feet lower than the current crest.

Please note that closures of the YBWA are not dependent on the amount of flooding. Rather than waiting until an area is inundated, the YBWA is closed as soon as water flows over the Fremont Weir.

This means that the discussion of the number of wet days, the number of days of inundation, misses the point. Inundation doesn't close the YBWA. The EIR doesn't address the number of days that water would be crossing the Fremont Weir, and that is the issue that will have an impact on closures of the wildlife area.

Based on this, I believe that the EIR significantly understates the impact that modifications to the Fremont Weir will have on educational (and recreational) uses of the Yolo Bypass Wildlife Area.

Response

Reclamation and DWR do not expect operations of the Project to require closures of YBWA in a similar fashion as described in this comment. Operations of the Project would see water flowing through a controlled notch in the Fremont Weir to a channel system, not flowing over the Fremont Weir.

Comment Letter IN14, Donald Stevens

Comment IN14-1

Comment

Salmon Survival: A study by DWR staff that compared young salmon survival in the Yolo Bypass with survival in the Sacramento River (Sommer T. R., W. C. Harrell, and M.L. Nobriga. 2005. Habitat Use and Stranding Risk of Juvenile Salmon in a Seasonal Floodplain. North American Journal of Fisheries Management 25: 1493 – 1504) is a glaring omission in Chapter 8. The study consisted of releasing tagged groups of young salmon at the upper end of the Yolo Bypass and simultaneously releasing tagged groups in the Sacramento River. Tagged fish were released in 1998, 1999, and 2000. Tag recoveries in the ocean fishery allowed survival to be compared for salmon migrating through the Bypass with survival of salmon migrating down the river.

Presumably, the study was done to demonstrate the benefits of the Yolo Bypass; however, results were contrary to expectations. Survival was better for the Bypass group in only 1 year of the 3. In round numbers, survival was slightly better than twice as great in the Bypass in 1998; in 1999, survival was essentially equal in the Bypass and the river; and in 2000, survival was almost twice as great in the river. The year in which the Bypass group did best -- 1998—was a “gully washer” type year – it was a lot wetter and had much greater flows than 1999 and 2000. Flows anticipated by notching Fremont Weir are considerably lower than those benefitting the tagged salmon in 1998 suggesting salmon would survive better if left in the river.

While studies indicate that young salmon grow well in the Bypass, survival is really the bottom line. One must wonder why additional Bypass vs. River survival comparisons were not done by DWR and/or the other involved agencies before settling on the “grand plan” described in the draft EIR. Ignoring contrary results is not good science! Further, not disclosing results of this survival study in the EIR seems contrary to the purpose of environmental impact reporting.

Response

The results of the referenced study suggest that "Adult ocean recoveries of tagged hatchery fish indicate that seasonal floodplains support survival at least comparable with that of adjacent perennial river channels. These results indicate that floodplains appear to be a viable rearing habitat for Chinook salmon, making floodplain restoration an important tool for enhancing salmon production." (Sommer, T., W. Harrell, M. Nobriga. 2005. "Habitat Use and Stranding

Risk of Juvenile Chinook Salmon on a Seasonal Floodplain." North American Journal of Fisheries Management 25, no. 4: 1493-1504. <https://doi.org/10.1577/M04-208.1>) Multiple technical studies have been conducted for this EIS/EIR to evaluate the potential impacts to listed fish species. The models used in these studies were considered to be the best available tools. The results of the model are discussed in Chapter 8, *Aquatic Resources and Fisheries*, and Appendices G1 through G7. See Master Response 1: Fish Benefits and Master Response 2: Science Review Panel.

Comment IN14-2

Comment

Carp and Goldfish: These members of the minnow family are not native and generally regarded as undesirable species. Like splittail, a native minnow, carp and goldfish are floodplain spawners, and swarm in the Yolo Bypass ponds and ditches after floods. The EIR should assess the impact of increased flooding on abundance of these species and the degree to which increases in their abundance will impact the estuarine food web and, in turn, survival of the listed species and other beneficial species in the Sacramento- San Joaquin rivers and Bay – Delta system.

Response

The potential for increased habitat availability for non-native fish species such as carp and goldfish, and associated potential effects on fish species of focused evaluation were incorporated into the alternative-specific evaluations under impact FISH-17 in Section 8.3.3 *Effects and Mitigation Measures*.

Public Meeting Comments

Comment Letter PM01, Jim Provenza, Yolo County

Comment PM01-1

Comment

Good evening, everybody. First of all, thank you for this presentation today. Yolo County is a cooperating agency, which means that we've been working with the state and federal agencies. And we appreciate that opportunity because we have all along been concerned about impacts.

The date that the inundation ends has been important to us because we did an agricultural impact analysis several years ago and found that with the later dates, if the weir was left open, say, to April, May, June, there would be significant impact. When we looked particularly at the rice crops, there would be significant impacts to our agriculture, and we requested an earlier date.

The March 15th is -- it's very close to a good date, but not quite good enough. We like the March 7th because it's not cutting things so close. The idea is not to have the fields inundated so late that the crops can't be planted for the next season.

Response

See Master Response 3: Inundation Period.

Comment PM01-2

Comment

We will be giving specific input for Yolo County. We're still reviewing the environmental impact reports, and we will be telling you which alternative that we like the best. And we're going through every page of that report, and we'll give you formal input.

But a couple of principles that I want to set forth -- and we appreciate you bringing us into the process and listening to the concerns. I've given one example.

We've also talked about making sure that all agricultural impacts, impacts on roads, impact on the economy, and impact on the wildlife area be identified. And we would like some assurances that for whatever impacts do occur, that there is mitigation, economic mitigation, for those impacts within our county, and that the county have a role in governance. In other words, that as the project goes forward, that we're involved in making decisions. Because I think that's the way you have the best project, and that's the way the folks here -- and I appreciate everyone who came out -- can continue to participate in the process.

So, again, we look forward to commenting, and we're happy that you listened to us and took our concerns into effect, and we're looking forward to the upcoming conversations on governance and economic mitigation.

Thank you very much.

Response

See Master Response 4: Impacts to Landowners and other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment Letter PM02, Steve Thompson, American West Conservation

Comment PM02-1

Comment

It's a big honor to step up here. Thank you. Steve Thompson, American West Conservation, and also doing consulting work with the Conaway Ranch in the middle of the Yolo Bypass.

So first of all, I want to thank all of you. And the presentations here are much, much better than trying to read that manual up there. We're getting through it as best as we can, but all the different appendices and how complicated it is and trying to understand the operation is pretty overwhelming in the paper version. So this is much better. So thank you for doing that.

And I want to also thank you for stepping forward on, to me, as the supervisor was just saying, one of the most incredible steps forward for the recovery of native fish. This isn't a flood project. It's not a water distribution project. It's about how to restore native fish back to this system. And that's amazing. That's a big leap forward.

Response

Reclamation and DWR are committed to continuing to work with stakeholders and appreciate their willingness to do so.

Comment PM02-2

Comment

But what I want to make a comment on is coming from a private landowner perspective. From the Conaway Ranch, for instance, there are a lot of concerns that this could be either a punishment or a reward. And so we're looking for those opportunities for private landowners to do the right thing for the fisheries resource and probably disagree quite a bit, by reading through all the different documents, about, you know, the agricultural impacts and things like that. They don't match up to what the real world is with our bankers, with our crop insurance people, or a lot of other things. So we're confused a little bit and need some more clarification on what you think your impacts are to private landowners. We think they're quite a bit different. And we'll be putting those in comments to you to try to explain that.

Response

See Master Response 4: Impacts to Landowners and other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment PM02-3

Comment

We're very, very concerned about the March deadlines. And that impacts not only our current operations and how we do things in our duck clubs and everything else, but March 1st is a lot better date than the 7th or the 15th. There's a very tight time frame there to get those fields corrected, get them dried out with clay soils and sandy soils, and everything else is going to have a big impact on us. And so the longer you keep the water, the harder it is for us to make it, which will probably make it a lot harder for us to get crop insurance and other things like that. So there are a lot of impacts on the time frame, how long you put the water out there.

Response

See Master Response 3: Inundation Period. See Response to Comment LA03-34 about crop insurance.

Comment PM02-4

Comment

We would love to see hundreds, thousands, more than -- I don't know. Was it five or ten or -- I don't know how many fish we were talking about before, but hopefully lots of salmon come back to these fields.

Response

Comment indicates a desire to have a substantial number of fish within the bypass. Comment does not address the adequacy or accuracy of the Draft EIS/EIR; therefore, no additional response is warranted.

Comment PM02-5

Comment

But as a private landowner, we're hoping there's some sort of safe harbor or something that says, you put a bunch of endangered species on us, okay. Now we don't have a defined drainage system for that system, and there's fish and things out there that are going to get trapped. Some fish will be stuck there. Is that the responsibility of the private landowner, or is that a problem we have, as far as, are owners going to get tickets for that, for stranding endangered species and things like that on the property.

Response

See Response to Comment IN02-2.

Comment PM02-6

Comment

We also understand that by putting the water on there late, we create millions and millions of tons of food for the Delta and for the fish in the Delta, and that's a good thing.

So what we're looking for from you -- and the willing seller comments were great because we haven't heard those before. But if that's the true direction here, a great project with willing, sustainable partnerships with private landowners is the true feature to recover the fish here and do a great thing for the State of California. But it has to include the private landowners. And right now, it's really hard to figure out in that document exactly where that is or what it says or what you really intend to do.

So thank you for putting the fish needs out there. At least we're starting to understand that. But we have real needs, too, as crop growers. And we want to try to put another crop on our fields; that's fish food, salmon, and we'd like to grow rice and things like that, too. So that's the objective.

Response

See Master Response 4: Impacts to Landowners and other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land for these types of impacts would occur outside of the NEPA/CEQA process.

Comment Letter PM03, Marge Kolar, Yolo Basin Foundation***Comment PM03-1*****Comment**

My name is Marge Kolar. I'm with the Yolo Basin Foundation, and we thank you as well. We work very well with you in our working group meetings and stuff, and we are interested in a lot of different areas, including the ag impacts, as well as wildlife impacts. But today, I just wanted to talk about the public access impacts, and we'll be sending in comments as well.

I had asked earlier to your hydrologic person about how the model was run, and he suggested I make a comment so that you got it on the record. And it was how you accounted for the loss of recreation days. And now I'm talking about hunting, fishing, wildlife observation, as well as our environmental education classes. And you mentioned it was closure at Lisbon Weir, and I wanted to be sure that you also accounted for drying-up periods. You can't just assume that when the water goes down, that that is significant for a closure date.

Response

Comment Letter NG04 contains detailed comments from the Yolo Basin Foundation. Please see Response to Comment SA01-4. The analysis assumes the drying time is similar under existing conditions and each alternative. Further, the model cannot predict the weather conditions when draining and drying out begins which is a primary factor in how long the drying time would be under either existing conditions or each alternative.

Comment PM03-2**Comment**

I also wanted to mention that in your EIS, you assume that closure isn't very significant because it's only so many percent of 365 days of the year. But, in fact, most of the public access in -- the Yolo wildlife area is what I'm talking about, the Bypass area -- is during your period between November and March. It isn't year-round. It's when all the ducks and geese are there. So you really should be considering that as a separate area.

Response

The current analysis compares the estimated number of additional closures days under each alternative to the 37-week educational program period (November through May), understanding that public access is not available 365 days.

Comment PM03-3

Comment

And I also wanted to find out what your mitigation is. Right now you do indicate that it's a significant impact to our education program, but there's no mention of mitigation. So I wanted to be sure that you included that.

Response

The evaluation has been updated to include the following mitigation measure (NEPA only) for environmental justice impacts: Reclamation and DWR will make fish passage facilities available for field trips. This mitigation measure would reduce the impacts on low-income students due to reduced educational opportunities offered in the YBWA by providing an alternative field trip site. See Response to Comment NG04-34 that addresses recreation impacts and Master Response 4: Impacts to Landowners and Other Users of Land.

Comment Letter PM04, Don Stevens, Glide In Ranch

Comment PM04-1

Comment

By way of introduction, my name is Don Stevens, and I retired from the Department of Fish and Game after working on Bay-Delta issues for 37 years. So I'm familiar with the fish species involved, and I'm familiar with the issues. And I just want to start off with one comment about salmon survival.

There was a study done by the Department of Water Resources' staff that compared young salmon survival in the Yolo Bypass with salmon in the Sacramento River. And information about this study, I think, is a glaring omission from the EIR. The study was documented in a paper in the North American Journal of Fisheries Management in 2005. As I said, I couldn't find any mention of it in the EIR.

The study consisted of releasing tagged groups of young salmon at the upper end of the Yolo Bypass and simultaneously releasing tagged groups in the Sacramento River. Tagged fish were released in 1998, '99, and 2000. Tag recoveries in the ocean fishery allowed survival to be prepared for salmon migrating through the Bypass and survival of salmon migrating down the river.

Presumably, the study was done to demonstrate the benefits of the Bypass, but results were, I'd say, contrary to expectations. Survival was better for the Bypass group in only one year of the three. In round numbers, survival was slightly better than twice as great in the Bypass in 1998; in '99, survival was about equal in the Bypass and the river; and in 2000, survival was almost twice as great in the river as it was in the Bypass.

In the year in which the Bypass group did best, that is 1998, it was a lot wetter. Basically, there was gully wash or type flows over Fremont Weir, and so it had much greater flows than in 1999 or 2000. And the flows that are being anticipated by notching Fremont Weir are considerably

lower than those that benefited the tagged salmon in 1998, suggesting to me that salmon would survive better if they were left in the river.

Response

See Response to Comment IN14-1.

Comment PM04-2**Comment**

You know, there's been studies which are indicated in the EIR which indicate that young salmon grow well in the Bypass, but survival is really the bottom line. And one must wonder why additional Bypass versus river survival comparisons were not done by the agencies before settling on the grand scheme to create habitat in the Bypass. Ignoring contrary results is not good science.

Response

The impacts analysis for fish looked at the full range of potential effects to target species (including growth and survival of juvenile Chinook salmon) in all waterways that could potentially be affected by each alternative using the best available science and analytical tools possible. The approach is described in Section 8.3.1, significance thresholds are listed in Section 8.3.2, and the results for each alternative are provided in Sections 8.3.3.1 through 8.3.3.7. The methodology and supporting information behind the findings for biological impacts are summarized in these sections. See Master Response 1: Fish Benefits and Master Response 2: Science Review Panel.

Comment PM04-3**Comment**

And I have some comments -- see, I think that maybe when I introduced myself, I might have forgotten to mention that I'm also a member of Glide In Ranch Duck Club, which is located in the eastern part of the Bypass, immediately south of the wildlife area.

In looking over the recreation chapter, it looks to me like information in this chapter -- that's chapter 13 -- greatly underestimates the project impact on private hunting clubs. The inundation estimates do not consider the amount of time that's needed to drain ponds down to shooting levels after pond levees are overtopped by the floodwater. And by "shooting levels," I mean getting pond depths down to levels that can be safely waded and duck blinds can be bailed.

Response

See Response to Comment SA01-4.

Comment PM04-4

Comment

Most of the levee ponds are drained through a 30-inch diameter pipe, which is controlled by a flashboard riser or screw gate. Draining down to a shooting level, at least in our case, requires one to two weeks after each flood event due to the time necessary to drain the water out of the ponds in inches.

Response

See Response to Comment SA01-4.

Comment PM04-5

Comment

I think maybe I'll jump to my final comment; and that is, the EIR doesn't explain how private duck clubs will be protected from project impacts. Project staff has indicated here and in a number of public meetings that eminent domain will not be used and that impacts will be restricted to willing sellers. Glide In Ranch is not a willing seller. So the measures that will protect us from being flooded by this project need to be described and evaluated in the EIR.

Response

See Master Response 4: Impacts to Landowners and Other Users of Land. To the extent appropriate, discussions related to compensation to landowners or users of land would occur outside of the NEPA/CEQA process.

Comment Letter PM05, Martha Ozonoff, Yolo Basin Foundation

Comment PM05-1

Comment

Martha Ozonoff of the Yolo Basin Foundation. I just wanted to go on record with two comments. We'll provide follow-up written comments as well.

Our concerns fall into two broad areas: public access. The impacts don't appear to be sufficient to address the public access concern in the EIS/EIR; in particular, our school program that we have that goes from September to May. You're well familiar with it. And at that -- we saw in the EIS/EIR that it was addressed through NEPA, the social injustice questions. Because we have -- 44 percent of our schools come from Title One school districts. And so we'd like to see that looked at a little bit more closely. It just seems like it wasn't taken into effect as much -- as closely as we'd like it to.

Response

The analysis has been revised to include the program participation data provided by Yolo Basin Foundation rather than only Davis Unified School District and Sacramento City Unified School District.

Comment PM05-2**Comment**

And then, wetlands quality, the analysis was insufficient to us. It didn't look as closely at water depths as we were hoping it would. If it goes too much past 18 inches, the ducks can't reach the food. And really, there's no wetlands out there. There's no -- that the ducks can use and waterfowl can use. There's really no point of having the wildlife area. So we'd like to see that impact looked at and maybe tightened up a little.

Response

The Ducks Unlimited Waterfowl Impacts Report (2017) looked at the amount of accessible and non-accessible acres of habitat available for waterfowl forage. That report concluded that: "in the exceedingly wet year (1999) there were impacts to food forage availability in late November to December. However, there was very little change to the point when supply of food falls below food demand. This trend is repeated fairly consistently for each of the water years modeled and each of the alternatives. In each case, Alternatives 1 and 6 have the most impact on food supply mid-winter but none of the alternatives significantly alter the point at which demand exceeds supply in late-winter/early spring (less than 2-3 days)." See also Response to Comment NG04-17.

Comment Letter PM06 Sandy Pettis**Comment PM06-1****Comment**

I'm Sandy Pettis. And I'm here representing John Fitzgerald, and he had some concerns.

One is being the pedestrian bridges tied into this project and where they're at and the effect that they're going to have and -- for several reasons. Some being that even on the refuge, there's not adequate Fish and Game to even manage what they already have down there.

Response

The channels for Alternatives 3, 4, and 6 all bisect the Fitzgerald Trust Property. The pedestrian bridges that span the channels associated with Alternatives 3, 4, and 6 (the western alignments) are located north and east of the Fitzgerald Trust Property. Concerns on the management of access for these bridges will be discussed with the respective parties. To the extent appropriate, discussions related to compensation to landowners would occur outside of the NEPA/CEQA process.

Comment PM06-2

Comment

And the other one is cutting through the wildlife cover on the west side that's -- there's a lot of wildlife that depend on that cover on that side, and almost three of your plans go right through the middle of it. And so where do -- where do the wildlife hang out when they're not being hunted on the refuge, which doesn't have that much cover, and also all the native species and the un-native species that are in those areas, the wooded area?

I'm not sure what else he wanted me to go over but -- that's it. Thanks.

Response

Chapter 9 acknowledges that construction-related impacts on vegetation communities that provide habitat for a variety of sensitive wildlife species would be significant, temporary impacts. Mitigation Measure MM-TERR-11 (Prepare and Implement a Compensatory Restoration Plan for Sensitive Vegetation Communities) will reduce these impacts to less than significant.

Comment Letter PM07, John Legakis, Senator Outing Duck Club

Comment PM07-1

Comment

I represent the Senator Outing Ranch, and I am one of many duck hunting clubs in the area -- or a member, probably 100 members and maybe 10 or 15 clubs from Knights Landing all the way down to Liberty Island. We haven't been really represented very well. The farmers have been represented, but the duck clubs have not.

We have a huge economic interest in this, millions of dollars. This flooding is going to definitely denigrate our hunting. The levels of water are critical. They're preflooded for a certain depth. When they bring water in, it floods the property, it floods the blinds, it floods our structures. So the value of our property is going to go way down, not to mention the loss of hunting.

Response

Additional information on the potential for lost hunting opportunities (and the potential qualitative financial impacts) has been added to Chapter 16. See also Master Response 4: Impacts to Landowners and Other Users of Land. To the extent appropriate, discussions related to socioeconomic impacts and compensation to landowners or users of land would occur outside of the NEPA/CEQA process.

Comment PM07-2**Comment**

We definitely have to have meetings that specifically address the duck clubs in the area. So I didn't hear too much on how this is going to be implemented. I think workshops have to be developed to address just the landowners that are involved in the duck clubs and duck hunting.

Response

Reclamation and DWR are committed to continuing to work with stakeholders and appreciate their willingness to do so. See Response to Comment PM07-1.

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Appendix P

MMRP

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Appendix P. Mitigation Monitoring and Reporting Program

P.1 Introduction

The proposed Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project (Project) would result in the potential for significant environmental impacts under the California Environmental Quality Act (CEQA) associated with water supply, air quality, groundwater resources, and agricultural land use. These CEQA mitigation measures have been incorporated into the Project to reduce impacts to less than significant levels. The mitigation measures for the Project must be adopted by the California Department of Water Resources (DWR), in conjunction with adoption of the Environmental Impact Report (EIR).¹

Section 21081.6 of the Public Resources Code (PRC) and CEQA Guidelines section 15097 require the Lead Agency for each project that is subject to CEQA to monitor performance of the mitigation measures included in any environmental document to ensure that implementation does, in fact, take place. The PRC requires the Lead Agency to adopt a monitoring and reporting program for assessing and ensuring the implementation of required mitigation measures.

In accordance with PRC Section 21081.6, DWR has developed this Mitigation Monitoring and Reporting Program (MMRP) for the Project. The purpose of the MMRP is to ensure activities associated with transferring water comply with all applicable environmental mitigation requirements.

P.2 Mitigation and Monitoring

Table P-1 lists the mitigation measures identified in the Environmental Impact Statement/Environmental Impact Report (EIS/EIR), responsible parties, method for verification, and the time frame for implementation. DWR, as the CEQA lead agency, is the ultimate agency responsible to make sure that mitigation measures are implemented. Other parties, including the Bureau of Reclamation and the construction contractor, will have a role in implementation.

¹ The EIS/EIR includes additional mitigation measures that apply only to National Environmental Policy Act (NEPA) compliance. These NEPA mitigation measures are not discussed in this appendix because the MMRP is a CEQA requirement.

Appendix P. Mitigation Monitoring and Reporting Program

Table P-1. Mitigation Measures

Measure No.	Mitigation Measure	Responsible Party	Method of Verification	Timing of Verification
MM-WQ-1	<p>The Lead Agencies or their construction contractor shall develop and implement an SPCCP to minimize the potential for, and effects from, spills of hazardous, toxic, and petroleum substances during construction and maintenance. The SPCCP shall be completed before construction activities begin. Implementation of this measure shall comply with State and Federal water quality regulations. The SPCCP shall describe spill sources and spill pathways in addition to the actions that shall be taken in the event of a spill (e.g., an oil spill from engine refueling shall be cleaned up immediately with oil absorbents) or the exposure of an undocumented hazard. The SPCCP shall outline descriptions of containment facilities and practices such as double-walled tanks, containment berms, emergency shut-offs, drip pans, fueling procedures, and spill response kits. It shall also describe how and when employees are trained in proper handling procedures and spill prevention and response procedures.</p> <p>The Lead Agencies shall review and approve the SPCCP before the onset of construction activities and shall routinely inspect the construction area to verify that the measures specified in the SPCCP are properly implemented and maintained. The Lead Agencies shall notify its contractors immediately if there is a noncompliance issue and shall require compliance.</p> <p>If a spill is reportable, the construction contractor's superintendent shall notify the Lead Agencies, and the Lead Agencies shall take action to contact the appropriate safety and cleanup crews to ensure the SPCCP is followed. A written description of reportable releases shall be submitted to the Central Valley RWQCB and the California Department of Toxic Substances Control. This submittal shall contain a description of the release, including the type of material and an estimate of the amount spilled, the date of the release, an explanation of why the spill occurred, and a description of the steps taken to prevent and control future releases. The releases shall be documented on a spill report form.</p>	DWR	Documentation on file with DWR	Prior to construction groundbreaking
MM-WQ-2	<p>Prior to initiating construction and maintenance activities, the construction contractor shall prepare an SWPPP that describes BMPs that shall be implemented to control accelerated erosion, sedimentation, and other pollutants during and after Project construction. Specific BMPs that shall be incorporated into the SWPPP shall be site-specific and shall be prepared in accordance with the regional water board field manual. The SWPPP shall include, but not be limited to, the following standard erosion- and sediment-control BMPs:</p> <ul style="list-style-type: none"> • Timing of construction. All construction and ongoing operations and maintenance activities shall occur from April 15 through November 1 to avoid ground disturbance in the rainy season. 	DWR	Documentation on file with DWR	Prior to construction groundbreaking

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Measure No.	Mitigation Measure	Responsible Party	Method of Verification	Timing of Verification
	<ul style="list-style-type: none"> • Stabilize grading spoils. Grading spoils generated during construction may be temporarily stockpiled in staging areas located within two miles of Yolo Bypass. Such staging areas shall not contain native or sensitive vegetation communities and shall not support sensitive plant or animal species. Silt fences, non-monofilament fiber rolls, or similar devices shall be installed around the base of the temporary stockpiles to intercept runoff and sediment during storm events. If necessary, temporary stockpiles may be covered with a geotextile material to increase protection from wind and water erosion. Materials used for stabilizing spoils will be selected to be non-injurious to wildlife • Permanent site stabilization. The construction contractor shall install structural or vegetative methods to permanently stabilize all graded or disturbed areas once construction is complete. Structural methods could include installing biodegradable fiber rolls or erosion-control blankets. Vegetative methods could include applying organic mulch and tackifiers, and/or an erosion-control native seed mix. • Staging of construction equipment and materials. Equipment and materials shall be staged in designated staging areas that meet the requirements identified above regarding stabilizing grading spoils. • Minimize soil and vegetation disturbance. The construction contractor shall minimize ground disturbance and the disturbance and/or destruction of existing vegetation. This shall be accomplished, in part, through establishing designated equipment staging areas, ingress and egress corridors, equipment exclusion zones and protecting existing trees before beginning any grading operations. • Install sediment barriers. The construction contractor shall install silt fences, fiber rolls, or similar devices to prevent sediment-laden water from leaving the construction area to the extent feasible in areas where construction is occurring in saturated soils. 			
MM-WQ-3	The Basin Plan for the Sacramento River and San Joaquin River basins (Fourth Edition) (Central Valley RWQCB 2016) contains turbidity objectives. Specifically, the plan states that where natural turbidity is between five and 50 NTUs, turbidity levels may not be elevated by 20 percent above ambient conditions; where ambient conditions are between 50 and 100 NTUs, conditions may not be increased by more than 10 NTUs; and where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent. A sampling plan shall be developed and implemented based on specific site conditions and in consultation with the Central Valley RWQCB. If turbidity limits exceed basin plan standards, construction-related earth-disturbing activities shall slow to a point that would alleviate the problem.	DWR	Documentation on file with DWR	Prior to construction groundbreaking
MM-WQ-4	The Lead Agencies shall develop and implement a program to reduce, minimize, or eliminate increases in water quality constituents. This mitigation measure will be focused	DWR	Documentation on file with DWR	Prior to issuing a construction contract

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Measure No.	Mitigation Measure	Responsible Party	Method of Verification	Timing of Verification
	<p>on mercury and methylmercury since other water quality parameters seem unlikely to be adversely affected.</p> <p>The program shall develop a monitoring plan, including frequent sampling and reporting, particularly for existing constituents of concern. The Lead Agencies shall coordinate with the implementation of the current TMDLs to share monitoring information and contribute to the efforts to reduce constituents of concern within the Yolo Bypass. If monitoring levels are found to be above water quality objectives, Lead Agencies will consider means to reduce discharges throughout the bypass region.</p> <p>As an example, monitoring information may lead to a conclusion that control of mercury entering the bypass from western sources (e.g. Cache Creek) will be the only effective means of reducing methylmercury production in the bypass. Mitigation might then involve improving mercury capture in the creek sedimentation basin, which would likely be part of meeting the mercury TMDL.</p> <p>As a second example, weir operations could be managed to limit the area and/or time-frames of inundation associated with increased methylmercury production.</p>			
MM-FISH-1	<p>As mitigation for loss of riparian and SRA habitat, degraded habitat would be restored or preserved to provide riparian and/or SRA habitat at or near the areas affected by construction of the intake facilities. If sufficient suitable area is not available near the Project Area, then offsite mitigation options will be pursued. Proposed restoration activities would include re-vegetation with native riparian species to provide SRA and/or riparian habitat that would provide instream or overhead cover for fish species of focused evaluation. As a component of SRA habitat, riparian tree species, such as alders, cottonwoods, and willows, would be planted. In addition to habitat restoration actions, due to the importance of IWM to juvenile fishes in the Sacramento River (USFWS 2000), any IWM that is moved or altered by construction or maintenance activities would stay on site or be replaced with a functional equivalent to the extent practicable. The specific restoration activities and mitigation ratios would depend on considerations that are not known at this time, including the location and environmental setting of the location where the restoration will occur or if offsite mitigation options are pursued. However, monitoring of restoration actions would be conducted for 15 years to ensure that restored habitat is functioning as intended, and is able to provide the same or increased areal extent of SRA habitat of the same or higher quality than the SRA habitat which was degraded or removed.</p>	DWR	Field verification	Restoration: before project operations begin Monitoring: five years
MM-FISH-2	<p>If an impact pile driver is necessary to construct the cofferdam in the wet, mitigation measures would be implemented to reduce the underwater noise, such as placing a bubble curtain system underwater. This mitigation measure would also include underwater sound monitoring during impact pile-driving activities to minimize the potential for sound levels to exceed those which may adversely affect fish. Because both juvenile and adult life stages</p>	DWR	Field verification	During construction

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Measure No.	Mitigation Measure	Responsible Party	Method of Verification	Timing of Verification
	of fish species of focused evaluation may be present during pile driving in the Sacramento River, underwater noise thresholds to be applied include a peak level of 206 dB and an accumulated SEL of 183 dB.			
MM-FISH-3	Implementation of a Fish Rescue and Salvage Plan would limit the number of fishes that may potentially be entrained and stranded during construction. A Fish Rescue and Salvage Plan would be prepared and approved by the Lead Agencies and implemented before construction to minimize the number of fish stranded within the cofferdam during placement and removal and to minimize fish stranding associated with dewatering activities in the Tule Canal. It also is anticipated that this plan would stipulate that at least one resource agency biologist shall be on site to assist with fish rescue activities and ensure that cofferdam construction and removal procedures have been implemented according to resource agency standards and protocols. A list of approved equipment (e.g., dip nets, seines, backpack electrofishers, fyke nets) will be included in the Fish Rescue and Salvage Plan. Equipment used for the stranding event will be chosen at the discretion of the onsite biologist.	DWR	Field verification	Plan: prior to issuing construction contract Monitoring: during construction
MM-FISH-4	<p>The construction contractor and operations and maintenance personnel shall implement the following general fish-protection measures during construction:</p> <ul style="list-style-type: none"> • Limit construction and maintenance activities to daylight hours. • Construction activities will occur outside of the flood season (i.e., during April 15 through November 1). • Confine clearing to the minimal area necessary to facilitate construction and maintenance activities. • Clearly delineate the Project area limits by using fencing, flagging, or other means prior to construction activities. • Keep construction equipment and materials as far away from suitable aquatic and riparian habitat as practicable. • Retain a qualified biologist (approved by Lead Agencies) to be present or on call during construction and maintenance activities with the potential to affect sensitive biological resources. The biological monitor shall be on site during ground-disturbing activities occurring in the wet or adjacent to potential fish-bearing waterbodies. The biological monitor shall ensure that any construction barrier is maintained and construction activities allow for fish species in the vicinity to move away from the construction area on their own volition. 	DWR	Field verification	During construction
MM-FISH-5	To mitigate for the potential delay or blockage of adult fish passage in the Tule Canal associated with the proposed water control structures and bypass channels, hydraulic and fish passage monitoring would be conducted downstream of the water control structures	DWR	Field verification	During construction

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Measure No.	Mitigation Measure	Responsible Party	Method of Verification	Timing of Verification
	<p>and in the bypass channels. Monitoring activities would include telemetry of tagged adult white sturgeon (as a surrogate for green sturgeon) approaching and passing through the bypass channels and measurement of depths and velocities downstream of and within the bypass channels. Monitoring would be conducted for a specified number of years per the MMRP to ensure that the water control structures and fish passage facilities are operating and functioning to provide suitable fish passage conditions. Performance objectives would include providing suitable passage conditions for adult salmon and sturgeon 100 percent of the time that passage is expected to be provided under existing conditions and providing successful passage to all tagged adult sturgeon attempting to migrate upstream, as described below.</p> <p>The percentage of successfully tagged sturgeon will be quantified for the first three years of operation. If less than 100 percent of tagged sturgeon successfully pass through the bypass channels during the first three-year period of operation, operations-related and structural modifications of the facility will be considered and evaluated for an additional three years. If less than 100 percent of tagged sturgeon successfully pass through the modified bypass channel, the Tule Canal water control structures operation will be restricted to an open position during the sturgeon migration period (after February 15) for an additional three-year period. During these initial nine years, the percentage of successfully tagged fish will be quantified. If the percentage of successful pass attempts by tagged sturgeon is greater with the water control structures remaining open, they will be left open when sturgeon are anticipated to be present, beginning February 15 of each year. If sturgeon passage does not increase during this period, structural changes to the water control structures and bypass channels may be scoped and evaluated through an independent NEPA and CEQA process, which is not part of the Project alternative.</p> <p>As part of this measure, attraction flows in the bypass channels would be monitored in comparison to flows at Knights Landing Ridge Cut to assess whether the attraction flows in the bypass channels were sufficient to attract adult fish species of focused evaluation such as green sturgeon, white sturgeon, Chinook salmon, and steelhead.</p> <p>In consultation with CDFW, NMFS and USFWS, tagging and monitoring of additional fish species, such as Chinook salmon, steelhead, Sacramento splittail, and Pacific lamprey, would occur to assess attraction and passage efficiency at the bypass channels.</p>			and for the next three years
MM-TERR-1	<p>The Project biologist shall monitor the Project site immediately prior to and during construction to identify the presence of invasive plants (those identified by Cal-IPC as having a moderate or high level of invasiveness or plants considered locally invasive) and recommend measures to avoid their inadvertent spread in association with construction and maintenance. The Project biologist shall prepare an invasive plant management plan based on the results of this field survey. The contractor shall be responsible for implementing the recommendations in the management plan. In addition, the contractor</p>	DWR	Field verification	During construction

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Measure No.	Mitigation Measure	Responsible Party	Method of Verification	Timing of Verification
	<p>shall implement the following BMPs to prevent the introduction and spread of invasive plant species during construction and maintenance:</p> <ul style="list-style-type: none"> • All construction and maintenance equipment shall be washed and cleaned of debris prior to entering the Project area to prevent entry of new invasive plant species to the Project area. • Straw bales and other vegetative materials used for erosion control shall be certified weed-free. • All revegetation materials (e.g., seed mixes and mulches) shall consist of native plant species from the Yolo Bypass, certified weed-free, and all seeds and container plants shall be obtained from locally adapted genetic stock that is also free from fungal pathogens (<i>Phytophthora</i> spp.) • In areas requiring weed control, effective methods for removal may vary depending on the species that is being controlled (typical methods include hand removal, mowing, or herbicide application). Herbicides shall be used consistent with Federal, State, and local requirements (including requirements or restrictions on the use of herbicides that are specified by resource agencies to prevent impacts to aquatic habitats, listed plant or wildlife species, or their habitat). All herbicides shall be used under the advisement of a certified Pesticide Control Advisor and shall be applied by an operator with a Qualified Applicator's License. • Insecticides, herbicides, fertilizers, and other chemicals that could harm special-status plant species or plants that provide habitat for special-status wildlife species shall not be used within 100 feet of such species and shall not be used without prior approval from the Lead Agencies. • Affected areas shall be replanted with native vegetation approved by the Lead Agencies. 			
MM-TERR-2	<p>Prior to the commencement of construction or ongoing maintenance activities, the Lead Agencies shall designate a Project biologist (a person with, at minimum, a bachelor's degree in biology, ecology, or environmental studies with familiarity with particular species with the potential to be impacted by the Project, including valley elderberry longhorn beetle, giant garter snake, western pond turtle, Swainson's Hawk, Least Bell's Vireo, Western Yellow-Billed Cuckoo, and Bank Swallow) who shall be responsible for overseeing compliance with protective measures for terrestrial biological resources during clearing and work activities within and adjacent to areas of sensitive vegetation communities. The Project biologist shall be familiar with the local vegetation communities, plants, and wildlife and shall maintain communications with the contractor to ensure that issues relating to biological resources are appropriately and lawfully managed. The Project biologist may designate qualified biologists or biological monitors to help oversee Project compliance or conduct focused surveys for special-status species. These biologists shall have familiarity</p>	DWR	Documentation on file with DWR	Prior to issuing a construction contract

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Measure No.	Mitigation Measure	Responsible Party	Method of Verification	Timing of Verification
	<p>with the species for which they would be conducting focused surveys or monitoring construction activities.</p> <p>The Project biologist or qualified biologist shall review final plans, designate areas that need temporary fencing, and monitor construction activities within and adjacent to areas with native vegetation communities or special-status plant and animal species. The qualified biologist shall monitor activities within designated areas during critical times, such as vegetation removal, initial ground-disturbing activities, and the installation of BMPs and fencing to protect native species, and shall ensure that all avoidance and minimization measures are properly constructed and followed. The qualified biologist shall check construction barriers or exclusion fencing and shall provide corrective measures to the contractor to ensure the barriers or fencing are maintained throughout construction. The qualified biologist shall have the authority to stop work if a special-status wildlife species is encountered within the Project area during construction. Construction activities shall cease until the Project or qualified biologist determine(s) that the animal will not be harmed or that it has left the construction area on its own. The appropriate regulatory agency(ies) shall be notified within 24 hours of sighting of a special-status wildlife species. The Project or qualified biologist shall conduct pre-maintenance surveys as needed in sensitive habitat areas or areas that could support special-status plant or animal species.</p>			
MM-TERR-3	<p>Prior to the start of construction, all Project personnel and contractors who will be on site during construction shall complete mandatory worker environmental awareness program training conducted by the Project biologist or a designated qualified biologist. Any new Project personnel or contractors that come onboard after the initiation of construction shall also be required to complete the mandatory worker environmental awareness before they commence with work. The training shall advise workers of potential impacts to sensitive vegetation communities and special-status plant and wildlife species and the potential penalties for impacts to such habitat and species. At a minimum, the program shall include the following topics: occurrences of the special-status species and sensitive vegetation communities in the Project area (including communities subject to USACE and CDFW jurisdiction), a physical description, life history, habitat requirements, sensitivity to human activities, legal protection and penalties for violations of Federal and State laws, reporting requirements, work features designed to reduce the impacts, and general plant- and wildlife-protection measures. Construction personnel shall be informed of the procedures to follow should a Federally or State-listed species be encountered during construction. Special-status species that should be covered in the training include valley elderberry longhorn beetle, giant garter snake, western pond turtle, special-status birds (Tricolored Blackbird, Bank Swallow, Swainson's Hawk, Least Bell's Vireo, Western Yellow-billed Cuckoo), migratory birds, special status bats, and American badger. Sensitive vegetation communities that should be covered in the training include black willow thickets, box elder</p>	DWR	Documentation on file with DWR	Prior to construction groundbreaking

Measure No.	Mitigation Measure	Responsible Party	Method of Verification	Timing of Verification
	<p>forest, California and hardstem bulrush marsh, Fremont cottonwood forest, mixed hardwood forest, sandbar willow thickets, and valley oak woodland.</p> <p>Included in this program shall be color photos of the special-status species and sensitive vegetation communities, which shall be shown to project personnel. Following the education program, the photos shall be posted in the contractor and resident engineer's office, where the photos shall remain through the duration of construction work. Photos of the habitat in which special-status species are found shall also be posted on site. The contractor shall be required to provide the Lead Agencies with evidence of the employee training (e.g., a sign-in sheet) on request. Project personnel and contractors shall be instructed to immediately notify the Project biologist or designated biologist of any incidents that could affect sensitive vegetation communities or special-status species. Incidents could include fuel leaks or injury to any wildlife. The Project biologist shall be responsible for notifying the appropriate regulatory agency within 72 hours of any similar incident.</p>			
MM-TERR-4	<p>The construction contractor and maintenance personnel shall implement the following general wildlife-protection measures during construction and maintenance:</p> <ul style="list-style-type: none"> • Limit construction and maintenance activities to daylight hours to the extent feasible. If nighttime activities are unavoidable, then workers shall direct all lights for nighttime lighting into the work area and shall minimize the lighting of natural habitat areas adjacent to the work area. Light glare shields shall be used to reduce the extent of illumination into sensitive habitats. If the work area is located near surface waters, the lighting shall be shielded such that it does not shine directly into the water. • Confine clearing to the minimal area necessary to facilitate construction and maintenance activities. Dispose of cleared vegetation and spoils daily at a permanent offsite spoils location or at a temporary onsite location that will not create habitat for special-status wildlife species. Spoils and dredged material shall be disposed of at an approved site or facility in accordance with all applicable Federal, State, and local regulations. • Maintain equipment to comply with noise standards (e.g., exhaust mufflers, acoustically attenuating shields, shrouds, or enclosures). • Avoid wildlife entrapment by completely covering or providing escape ramps for all excavated steep-walled holes or trenches more than 1 foot deep at the end of each construction work day. The qualified biologist shall inspect open trenches and holes and shall remove or release any trapped wildlife found in the trenches or holes prior to filling by the construction and maintenance contractors. • Special-status wildlife can be attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar features; construction equipment; or construction debris left overnight in areas that may be occupied by special-status species that could occupy such structures shall 	DWR	Field verification	During construction

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Measure No.	Mitigation Measure	Responsible Party	Method of Verification	Timing of Verification
	<p>be inspected by a qualified biologist prior to being used for construction. Such inspections shall occur at the beginning of each day's activities for those materials to be used or moved that day. If necessary, and under the direct supervision of the biologist, the structure may be moved up to one time to isolate it from construction activities, until the special-status species has moved from the structure of their own volition, has been captured and relocated, or has otherwise been removed from the structure.</p> <ul style="list-style-type: none"> • Capture and relocation of trapped or injured wildlife listed under ESA or CESA can only be performed by personnel with appropriate state and/or federal permits. Any sightings and any incidental take shall be reported to the Lead Agencies via email within one working day of the discovery. A follow-up report shall be sent to these agencies, including dates, locations, habitat description, and any corrective measures taken to protect special-status species encountered. For each special-status species encountered, the biologist shall submit a completed CNDDB field survey form (or equivalent) to the Lead Agencies no more than 90 days after completing the last field visit to the project site. • The Lead Agencies shall be notified within one working day of the discovery of, injury to, or mortality of a special-status species that results from project-related construction activities or is observed at the project site. Notification shall include the date, time, and location of the incident or of the discovery of an individual special-status species that is dead or injured. For a special-status species that is injured, general information on the type or extent of injury shall be included. The location of the incident shall be clearly indicated on a USGS 7.5-minute quadrangle and/or similar map at a scale that will allow others to find the location in the field, or as requested by the Lead Agencies. The biologist is encouraged to include any other pertinent information in the notification. • Minimize the spread of dust from work sites to sensitive natural communities or sensitive species habitats on adjacent lands by use of a water truck. • Prior to the start of construction and maintenance activities each day, the Project biologist or designated biologist shall inspect the work area and any equipment or material left on site overnight for special-status wildlife species. • Observe posted speed limit signs on local roads and observe a 15-mile-per-hour speed limit along ingress and egress routes. Extra caution shall be used on cool days when giant garter snakes may be basking on roads. • Dispose of food-related and other garbage in wildlife-proof containers and remove the garbage from the project area daily during the construction and maintenance periods. Vehicles carrying trash will be required to have loads covered and secured to prevent trash and debris from falling onto roads and adjacent properties. 			

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Measure No.	Mitigation Measure	Responsible Party	Method of Verification	Timing of Verification
	<ul style="list-style-type: none"> To avoid injury or death to wildlife, no firearms will be allowed on the project site except for those carried by authorized security personnel or local, State, or Federal law enforcement officials. To prevent harassment, injury, or mortality of sensitive wildlife by dogs or cats, no canine or feline pets will be permitted in the active construction area. Plastic monofilament netting or similar material will not be used for erosion control because smaller wildlife may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackifier hydroseeding compounds. This limitation shall be communicated to the contractor through specifications or special provisions included in the construction bid solicitation package. Rodenticides and herbicides shall be used in accordance with the manufacturer recommended uses and applications and in such a manner as to prevent primary or secondary poisoning of special-status fish, wildlife, and plant species and depletion of prey populations upon which they depend. All uses of such compounds shall observe label and other restrictions mandated by the USEPA, the California Department of Pesticide Regulation, and other appropriate State and Federal regulations, as well as additional project-related restrictions imposed by the Lead Agencies. Retain a qualified biologist to be present or on call during construction and maintenance activities with the potential to affect sensitive biological resources. The qualified biologist shall conduct monitoring per MM-TERR-2. 			
MM-TERR-5	<p>All native or sensitive habitat areas outside of and adjacent to the designated Project limits of disturbance shall be designated as Environmentally Sensitive Areas on Project maps. Prior to construction, the Lead Agencies shall delineate the Project limits, including construction, staging, lay-down, and equipment storage areas, and erect the construction boundary, with fencing or flagging, along the perimeter of the identified construction area to protect adjacent sensitive habitats and sensitive plant populations. Environmentally Sensitive Areas shall be clearly delineated with fencing or flagging or other BMPs prior to construction to inform construction personnel where the Environmentally Sensitive Areas are located. The fences and flags shall be marked clearly in the field and confirmed by the Project biologist prior to any clearing, and the marked boundaries shall be maintained throughout the duration of construction work. No personnel, equipment, or debris shall be allowed within the Environmentally Sensitive Areas. Fences and flags shall be installed by the contractor in a manner that does not impact habitats to be avoided and such that it is clearly visible to personnel on foot and operating heavy equipment. Ten days prior to initiating construction, the contractor shall submit to Lead Agencies final plans for initial clearing and grubbing of habitat and Project construction. Temporary construction fences and markers shall be maintained in good repair by the contractor and shall be removed upon completion of Project construction.</p>	DWR	Field verification	Prior to and during construction

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	No work activities, materials, or equipment storage or access shall be permitted outside the Project limits without permission from the Lead Agencies. All parking and equipment storage by the contractor related to the Project shall be confined to the Project limits. Undisturbed areas and sensitive habitat outside and adjacent to the Project limits shall not be used for parking or equipment storage. Project-related vehicle traffic shall be restricted to the Project limits and established roads and construction access points.			
MM-TERR-6	All construction-related vehicles and equipment storage shall occur in the designated staging areas. These areas shall not contain native or sensitive vegetation communities and shall not support sensitive plant or wildlife species. Project-related vehicle traffic shall be restricted to established roads and the Project disturbance limits as described above and all motor vehicles operating within the Project limits shall observe a speed limit of 15 miles per hour to avoid striking giant garter snake or other special-status wildlife species. Dirt access roads, haul roads, and spoils areas shall be watered at least twice each day when being used during construction dry periods.	DWR	Field verification	During construction
MM-TERR-7	<p>Prior to the start of construction activities, valley elderberry longhorn beetle habitat surveys shall be conducted by a qualified biologist that has been approved by the Lead Agencies in the Project construction area and within 165 feet of the Project construction area. All elderberry shrubs with stems one inch or greater in diameter at ground level shall be recorded, tallied by diameter size class, and designated as to whether the elderberry shrub is in a riparian or non-riparian area. Exit hole surveys are not essential in riparian areas but shall be conducted in non-riparian areas. Elderberry shrubs shall be marked with flags for avoidance during construction, if feasible.</p> <p>Prior to conducting maintenance activities, a qualified biologist shall determine if any elderberry shrubs that are one inch or greater at ground level are present within the maintenance area. If elderberry shrubs smaller than that size are present, they shall be removed or transplanted to an approved off-site mitigation area. If elderberry shrubs one-inch or greater at ground level are present, then the Lead Agencies shall consult with USFWS in accordance with MM-TERR-9 and MM-TERR-10.</p>	DWR	Field verification	Prior to construction groundbreaking or maintenance actions
MM-TERR-8	<p>Elderberry shrubs mapped during pre-construction surveys shall be avoided to the extent practicable during construction activities. For all elderberry shrubs identified for avoidance, an avoidance buffer of 165 feet or more shall be established prior to construction activities. The avoidance buffer shall consist of a physical barrier, such as flags, exclusion fences, or K-Rail barriers, and shall be maintained for the duration of Project construction. The following protective measures shall be taken to ensure that elderberry shrubs in the buffer zone are not impacted:</p> <ul style="list-style-type: none"> • Prior to construction, all buffer areas surrounding elderberry shrubs to be avoided shall be fenced and/or flagged as close to the construction limits as feasible. In areas where 	DWR	Field verification	Prior to and during construction

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	<p>encroachment of the 165-foot buffer has been approved by USFWS, a minimum setback of at least 20 feet from the drip-line of each elderberry shrub shall be provided to avoid damaging or killing the plant. A 20-foot avoidance buffer shall be established around all elderberry shrubs with stems one inch or greater in diameter at ground level during maintenance. These areas shall be avoided by all maintenance personnel and maintenance activities. Mowing shall not occur within five feet of any elderberry stem one inch or greater in diameter at ground level. Vegetation within five feet of any elderberry stem one inch or greater in diameter at ground level shall be removed by hand only.</p> <ul style="list-style-type: none"> • The contractor and all Project personnel and contractors that will be on site during construction shall be briefed regarding the status of the beetle and the need to protect its elderberry host plant, the need to avoid damaging elderberry shrubs and possible penalties for noncompliance with these requirements. • To the extent feasible, all activities within 165 feet of an elderberry shrub shall be conducted outside of the valley elderberry longhorn beetle flight season (March-July). • Signs shall be erected every 50 feet along the edge of the avoidance area with the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs shall be clearly readable from 20 feet and must be maintained for the duration of Project construction. • If there is damage within the 165-foot buffer areas, erosion control measures and revegetation with appropriate native plant species shall be conducted with approval from USFWS. • No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its elderberry host plant shall be used in the 165-foot buffer areas. • The Lead Agencies shall provide a written description to USFWS regarding how the buffer areas are to be restored, protected, and maintained after construction is completed. 			
MM-TERR-9	The Lead Agencies shall consult with USFWS prior to any ground disturbance within 165 feet of an elderberry shrub. In areas where encroachment into the 165-foot buffer zone is necessary, a minimum setback of at least 20 feet from the drip-line of the elderberry shrub shall be established per MM-TERR-8. The Lead Agencies shall provide USFWS with a map identifying the avoidance area and a list of proposed avoidance measures.	DWR	Field verification	Prior to construction groundbreaking
MM-TERR-10	The Lead Agencies shall identify measures to relocate (transplant) or replace elderberry shrubs with stems measuring one inch or greater in diameter at ground level if an adequate buffer cannot be provided, if trimming is required, if a shrub cannot be avoided during	DWR	Documentation on file with DWR	Prior to construction groundbreaking

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	<p>construction and must be removed, or if indirect effects will result in the death of stems or the entire shrub. The Lead Agencies shall prepare a mitigation plan for impacts to elderberry shrubs. This plan shall include transplantation procedures that comply with USFWS's <i>Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle</i> (<i>Desmocerus californicus dimorphus</i>) (USFWS 2017). These procedures include requirements for a qualified biologist to perform exit-hole surveys prior to transplanting and to monitor elderberry shrub transplantation, information on timing of transplantation during the non-growing season (approximately November through mid-February), the need for compliance with the most current version of the American National Standards Institute A300 (Part 6) guidelines for transplanting (http://www.tcia.org/), and specific methods to follow during transplantation, including how far to cut back stems, how large a hole to excavate, and proper planting and watering techniques to minimize stress and maximize transplantation survival.</p> <p>For unavoidable adverse impacts to valley elderberry longhorn beetle or its habitat, compensatory mitigation will be coordinated with USFWS. General guidelines require transplanting elderberry shrubs to designated mitigation areas at a mitigation ratio determined during consultation with USFWS (typically a minimum of 3:1 for acres of suitable riparian habitat that would be permanently impacted and a minimum of 1:1 for acres of occupied elderberry shrubs in non-riparian habitat). In addition, two credits at a USFWS-approved bank shall be purchased for each impacted shrub in riparian areas, and one credit shall be purchased for each impacted shrub in non-riparian areas. Associated native plant species might need to be planted to provide a more diverse native vegetation community at a mitigation ratio determined during consultation with USFWS. Planted and seeded areas might be subject to monitoring and performance standards. Alternatively, mitigation credits might be purchased from an approved mitigation bank. The mitigation plan must be approved by USFWS during formal consultation and could include, but would not necessarily be limited to, identified locations for transplanted or replacement elderberry shrubs, appropriate replacement ratios, and success standards, monitoring, and reporting requirements (per USFWS 2017 guidelines). Consultation with USFWS shall be completed prior to removal, trimming, or thinning of any elderberry shrubs.</p>			
MM-TERR-11	<p>Impacts to sensitive vegetation communities shall be mitigated through the establishment, enhancement, or preservation of habitat either in the FWWA or in the Yolo Bypass at a minimum 1:1 ratio based on either acreage or habitat function (riparian communities will be mitigated at a 3:1 ratio). Sensitive vegetation communities include habitats with potential to support Federally and/or State threatened or endangered species, USACE wetlands, and CDFW riparian areas (open water, temperate freshwater floating mat, water primrose wetlands, California and hardstem bulrush marsh, black willow thickets, box elder forest, Fremont cottonwood forest, mixed hardwood forest, and valley oak woodland). Final mitigation ratios will be determined in consultation with each relevant regulatory agency. USACE wetland habitat and valley oak woodland will require a minimum of 1:1</p>	DWR	Documentation on file with DWR	Prior to construction groundbreaking

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	establishment or substantial restoration to comply with Federal wetland policy and local oak woodland policy. Establishment and enhancement will be provided on site where feasible. If sufficient suitable area is not available near the Project impact area, then offsite mitigation options will be pursued. Offsite options may include in-lieu fee payments or purchase of mitigation credits at a mitigation bank approved by the Lead Agencies, as applicable. A restoration plan shall be prepared for mitigation and onsite restoration of temporary impacts, including detailing of topsoil stockpiling for areas with native vegetation and/or seeds of special-status plants, as feasible. These plans will detail the communities to be restored, locations for restoration, container plant palettes and/or seed mixes, and maintenance and monitoring requirements. Seed mixes shall consist of plant species native to the Project area and shall be free from noxious weed species.			
MM-TERR-12	<p>The following measures shall be implemented to avoid or minimize impacts to giant garter snake and its aquatic and upland habitats:</p> <ul style="list-style-type: none"> • A qualified giant garter snake biologist approved by the Lead Agencies shall be present to monitor construction and maintenance activities in or within 200 feet of suitable giant garter snake aquatic or upland habitat. The qualified biologist shall be present during vegetation removal in giant garter snake habitat and shall walk ahead of the removal of emergent wetland and herbaceous upland vegetation. • Disturbance to suitable aquatic and upland sites in or near the project footprint shall be avoided to the extent feasible, and the loss of aquatic habitat and grassland vegetation shall be minimized through adjustments to project design, as practicable. • The qualified biologist shall conduct pre-construction surveys in suitable giant garter snake habitat for a period of three days prior to the installation of all Stormwater Pollution and Prevention Plan BMPs, vegetation clearing within or adjacent to aquatic habitat, and the establishment of staging areas within 200 feet of aquatic habitat. Within the project footprint where burrows are present in upland habitat within 200 feet of suitable aquatic habitat, all burrows shall be avoided until the qualified biologist has conducted burrow monitoring for a period of three days and cleared the area. To the extent practicable, construction activities shall be avoided within 200 feet of the banks of giant garter snake aquatic habitat. Ground disturbance shall be confined to the minimal area necessary to facilitate construction activities. To the maximum extent feasible, movement of heavy equipment shall be confined to existing roads. • The qualified biologist shall conduct giant garter snake surveys if construction activities stop for a period of two weeks or more. • To the extent practicable, all construction activity in suitable giant garter snake habitat shall be conducted during the giant garter snake active period (May 1 to October 1) to lessen the risk of direct mortality. Only construction or maintenance activities within 200 feet of suitable giant garter snake habitat that have started prior to October 1 shall 	DWR	Field verification	Prior to and during construction

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	<p>continue outside the active season, with Lead Agency approval. No new construction or maintenance work activities within 200 feet of suitable giant garter snake habitat shall be started after October 1.</p> <ul style="list-style-type: none"> • Prior to the start of construction activities and during the active period for giant garter snakes (beginning May 1), the qualified biologist shall determine where exclusion fencing will be installed to protect giant garter snake habitat adjacent to the defined project footprint and minimize the potential for giant garter snakes to enter the construction work area. The construction contractor shall install exclusion fences along the edges of construction areas that are within 200 feet of suitable giant garter snake aquatic habitat. Avoided habitat shall be designated as Environmentally Sensitive Areas on final construction plans. The exclusion fencing shall consist of a material that snakes cannot get through or become entangled in. The exclusion fence shall be buried at least six inches below ground to prevent animals from entering below the fence, with at least 20 inches exposed above ground. The fence shall be inspected daily prior to project activity for maintenance and shall remain in place throughout the construction period. Maintenance shall include removal of vegetation and debris material that can be used to traverse the fence, patching any holes within the fence, ensuring the fence is intact and upright, and filling new burrows that go under the fence once a qualified biologist has inspected such burrows to ensure no special-status wildlife species are occupying them. Any necessary repairs shall be immediately addressed. If work extends beyond October 1, the exclusion fencing shall be maintained to prevent giant garter snakes from entering the construction limits and utilizing upland areas for overwintering. • If exclusion fencing is found to be compromised, the qualified biologist shall conduct a survey immediately preceding construction activity that occurs in designated giant garter snake habitat or in advance of any activity that may result in take of the species. The biologist shall search along exclusion fences and in pipes and beneath vehicles before they are moved. • If a giant garter snake is observed in the construction area, all construction activities shall cease and a qualified biologist shall be notified immediately. If possible, the snake should be allowed to leave on its own and activities shall not resume until the snake has moved out of the area on its own. Alternatively, the qualified biologist may capture and relocate the snake unharmed to suitable aquatic habitat a minimum of 200 feet outside of the work area in a location that is identified by the qualified biologist prior to commencement of construction. If the snake does not leave on its own and cannot be relocated unharmed, construction activities within 200 feet of the snake shall stop to prevent harm to the snake. The Lead Agencies shall be notified by telephone or email within 24 hours of a giant garter snake observation during construction activities. 			

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	<ul style="list-style-type: none"> A qualified biologist shall be available on an on-call basis during maintenance activities with the potential to affect giant garter snake. If needed, a qualified biologist shall be maintained on site during maintenance activities to ensure protection of giant garter snake. The biologist shall have the authority to stop work if a giant garter snake is encountered within the maintenance area. If a giant garter snake is observed in the maintenance area, all activities within 200 feet of the snake will stop to prevent harm to the snake. After April 15, any dewatered habitat shall be allowed to dry (no standing water) for at least 15 consecutive days prior to excavating or filling of the dewatered habitat. 			
MM-TERR-13	After completion of construction activities, the construction contractor shall remove any temporary fill, construction debris, and stockpiled materials. Giant garter snake aquatic and upland habitat subject to temporary disturbance shall be recontoured to pre-Project conditions as feasible, upland areas (grassland, riparian scrub, riparian forest, and riparian woodland) shall be reseeded with native seed mixes and/or container plant palettes approved by the Lead Agencies, and aquatic vegetation shall be allowed to recolonize. This restoration effort will require maintenance, monitoring, and achievement of success criteria per MM-TERR-11.	DWR	Field verification	During construction
MM-TERR-14	The permanent loss of giant garter snake aquatic and upland habitat resulting from project construction shall be compensated for through a combination of onsite and/or offsite restoration, enhancement, and/or purchase of mitigation credits at an approved conservation bank. A qualified biologist familiar with giant garter snake and its habitat that has been approved by the Lead Agencies shall conduct focused habitat assessment surveys in the Project area when final plans and specifications have been completed for the selected alternative. The biologist shall conduct an assessment of the suitability of the habitat to support giant garter snake, including an evaluation of habitat suitability for burrows and foraging. The functions and values of the affected area shall also be evaluated to establish appropriate performance standards for the mitigation site, which shall be documented in a final habitat mitigation plan.	DWR	Documentation on file with DWR	Prior to construction groundbreaking
MM-TERR-15	A qualified biologist shall conduct surveys for western pond turtle in suitable upland and aquatic habitat within 48 hours prior to the start of construction or maintenance activities. If there is a lapse in construction or maintenance activities of two weeks or more, the area shall be resurveyed within 24 hours prior to the recommencement of work. If western pond turtles are observed in the Project area during construction, construction activities in the vicinity shall cease until protective measures are implemented or a qualified biologist has determined that western pond turtles will not be harmed. A qualified biologist may move the western pond turtle(s) to a suitable location outside of the Project footprint. The Lead Agencies shall be notified if any western pond turtles are relocated. If western pond turtles are observed in the Project area during maintenance, activities shall be postponed until the	DWR	Field verification	Prior to construction groundbreaking or maintenance activities

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	turtles have left the work area on their own accord or until a qualified biologist has relocated it to a suitable location outside the work area or determined the turtle will not be disturbed by maintenance activities.			
MM-TERR-16	<p>Preconstruction nesting bird surveys shall be conducted by a qualified avian biologist within 14 days prior to construction or maintenance activities in all suitable nesting habitats in the Project area if such activities will take place between February 1 and August 31. Nesting surveys shall be conducted in accordance with the recommended timing, methodology, and or/protocol for each Federally and/or State-listed bird species. A qualified biologist that has been approved by the Lead Agencies shall conduct passive surveys within 500 feet of proposed construction activities to determine the presence of Western Yellow-Billed Cuckoo, Least Bell's Vireo, Bank Swallow, and other nesting birds during the nesting season (June 1 through August 31 and April 1 through August 31, respectively). Surveys shall also include a 0.5-mile radius outside the Project area for Swainson's Hawk. If there is a break in construction of one week or more, surveys shall be conducted prior to the re-initiation of construction.</p> <p>If nesting birds are found, the qualified avian biologist shall establish suitable buffers prior to construction or maintenance activities. To prevent encroachment, the established buffer(s) shall be clearly marked by high visibility material. The buffer distance shall be determined based on the species, type of construction activities, and line of sight to the work area. Nesting birds and offspring shall not be disturbed or killed, and nests and eggs shall not be destroyed. Work shall be conducted no less than 500 feet from an active raptor nest or nest of a Federally or State-listed species and no less than 300 feet from other active bird nests. The established buffer(s) shall remain in effect until the young have fledged and are independent or the nest has been abandoned as confirmed by the qualified avian biologist. If non-listed birds are showing signs of agitation within the established buffer(s) due to noise or other effects, the buffer(s) shall be expanded to prevent birds from abandoning their nest. The biologist shall have the authority to halt work if there are any signs of distress or disturbance that may lead to nest abandonment. Work will not resume until corrective measures have been taken or it is determined that continued activity would not adversely affect nest success. No construction or maintenance activities, including tree removal, shall occur in the buffer zone until the young have fledged or the nest is no longer active, as confirmed by the qualified biologist.</p> <p>If active Western Yellow-billed Cuckoo or Least Bell's Vireo nests are identified within 500 feet of noise-generating construction or maintenance activities and noise is in excess of 60 dBA (decibel A weighted) hourly Leq (equivalent continuous noise level), or if noise is in excess of ambient noise levels if ambient noise levels exceed 60 dBA hourly Leq, measures will be implemented to reduce noise levels to 60 dBA hourly Leq or to ambient noise levels if ambient noise levels exceed 60 dBA hourly Leq at the nest location. Noise monitoring shall occur during the breeding season and shall be reported daily to the</p>	DWR	Documentation on file with DWR	Prior to construction groundbreaking

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	USFWS. A qualified biologist shall ensure that avoidance and minimization measures are implemented such that adverse effects to Western Yellow-billed Cuckoo and Least Bell's Vireo do not occur because of the adjacent construction activities (e.g., noise and lighting). If the qualified biologist suspects that avoidance and minimization measures are ineffective and project activities may adversely affect Western Yellow-billed Cuckoo or Least Bell's Vireo, culpable activities will be suspended within 500 feet of active nesting territories until nesting activity is completed and fledglings are no longer in the area or until effective avoidance and minimization measures can be identified, implemented, and demonstrated to be effective. If measures cannot be identified, implemented, and demonstrated to be effective to avoid adverse effects to these species, then project construction shall stop until consultation with the USFWS to address unanticipated impacts to these species has been completed.			
MM-TERR-17	<p>Surveys for roosting special-status bats (including pallid bat, western red bat, and other native bat species) shall be conducted in the Project area by a qualified bat biologist where suitable habitat that might be removed, altered, or indirectly impacted during construction or maintenance is present. A qualified biologist shall conduct a habitat assessment for potentially suitable bat habitat within six months prior to construction activities. In addition, focused bat surveys shall be conducted within 48 hours prior to the start of construction activities, irrespective of the time of year construction is to start. If there is a lapse in construction activities of two weeks or greater, the area shall be resurveyed within 24 hours prior to recommencement of work. Surveys shall also be conducted within 48 hours prior to the start of maintenance activities. Locations with potential for roosting or that are suitable as a maternity roost shall be surveyed by a qualified bat biologist using an appropriate combination of structure inspection, exit counts, acoustic surveys, or other methods. Surveys shall be conducted during the appropriate season and time of the day or night to ensure detection of day- and night-roosting bats (i.e., preferably one daytime and one nighttime survey shall be conducted at each location with suitable roosting habitat during the maternity season, April 15 through August 31, if feasible).</p> <p>If a bat roost is present in the Project area in a tree that does not need to be removed, a no-disturbance buffer (typically 300 feet) shall be established and maintained throughout construction or during maintenance. If a maternity roost is identified, a no-disturbance buffer shall be established and maintained until a qualified biologist determines that the roost is no longer active.</p> <p>If a bat roost is detected in a tree that needs to be removed, passive exclusion shall include monitoring the roost for three days to determine whether the roost is active. If the roost is determined by a qualified biologist to support a reproductive female with young, the roost shall be avoided until it is no longer active. If the roost remains active during the three monitoring days and observations confirm it is not a maternity colony, a temporary bat exclusion device shall be installed under the supervision of a qualified bat biologist. At</p>	DWR	Documentation on file with DWR	Prior to construction groundbreaking

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	<p>the discretion of the qualified bat biologist, an alternative roosting structure(s) might be constructed and installed prior to installation of exclusion devices. Exclusion shall be conducted between August 31 and October 15 to avoid trapping flightless young inside during the summer months or torpid (overwintering) individuals during the winter. If it cannot be determined by a qualified biologist whether an active roost site supports a maternity colony, the roost site shall not be disturbed, and construction within 300 feet shall be postponed or halted until the roost is vacated and the young are able to fly.</p> <p>Exclusion efforts shall be monitored on a weekly basis, continued for the duration of Project construction, and removed when no longer necessary. The following measures are also proposed to further reduce the potential for impacts to roosting and foraging special-status bats, including pallid bat and western red bat, and other native bat species, if present:</p> <ul style="list-style-type: none"> • All construction or maintenance work conducted near active roosts shall take place during the day to the extent feasible. If this is not feasible, impacts will be minimized by directing lighting and noise away from night roosting and foraging areas to the extent feasible. • Combustion equipment (such as generators, pumps, and vehicles) shall not be parked or operated near an active roost. Construction and maintenance personnel shall not be present directly under a roosting colony. In addition, care will be taken to ensure that construction and maintenance activities do not severely restrict airspace access to the roosts. • Tree trimming and/or tree removal associated with construction or maintenance in areas with suitable bat habitat shall only be conducted during seasonal periods of bat activity (from August 31 through October 15, a period prior to hibernation when young are self-sufficiently volant, and from March 1 to April 15 to avoid hibernating bats and prior to formation of maternity colonies), as feasible, under supervision of a qualified biologist. • Trees shall be trimmed and/or removed in a two-phased removal system conducted over two consecutive days under the supervision of a qualified biologist. Prior to tree removal or trimming, each tree shall be shaken gently, and several minutes shall pass before felling trees or limbs to allow bats time to arouse and leave the tree. The biologist shall search downed vegetation for dead or injured bats and report any dead or injured special-status bats to the Lead Agencies. On the first day (in the afternoon), limbs and branches shall be removed by a tree cutter using chainsaws only. Limbs with cavities, crevices, or deep bark fissures shall be avoided, and only branches or limbs without those features shall be removed. On the second day, the entire tree shall be removed. • Project proponents shall consult with a qualified bat biologist to determine suitable buffers around roost and/or hibernaculum sites. Buffers may vary depending on species and project activity being performed. 			

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	<ul style="list-style-type: none"> If bats are showing signs of distress, construction and maintenance activities shall be modified to prevent bats from abandoning their roost or altering their feeding behavior, as determined by a qualified biologist. At any time, the qualified biologist shall have the authority to stop work if there are any signs of distress or disturbance that could lead to roost abandonment. Construction and maintenance work shall not continue until corrective measures have been taken or it is determined by a qualified biologist that continued activity would not adversely affect roost success. 			
MM-TERR-18	A qualified biologist shall conduct pre-construction surveys for American badger and badger dens in suitable habitat at least 48 hours prior to the start of construction activities. If there is a lapse in construction activities of two weeks or greater, the area shall be resurveyed within 24 hours prior to the recommencement of work. If a potential American badger den is identified in the Project area, an appropriate avoidance buffer shall be established and project activities shall avoid American badger dens and associated habitat. If avoidance is not possible, then den exclusion shall take place between September 1 and January 1. The Project shall mitigate for the loss of habitat by preserving in perpetuity existing occupied habitat at a 1:1 ratio.	DWR	Documentation on file with DWR	Prior to construction groundbreaking
MM-TERR-19	A qualified biologist shall conduct pre-construction surveys for special-status plant species with the potential to occur in the alkaline grassland portions of the Project construction area (heartscale, San Joaquin spearscale, Heckard's pepper grass, California alkali grass, and saline clover). Surveys shall be conducted during the flowering period for each special-status plant species. If one or more special-status plant species are detected, then a qualified biologist shall flag populations that can be avoided, monitor activities near special-status plant species populations during construction, monitor collection of seeds from populations that cannot be avoided, monitor topsoil collection in areas with special-status plants (where feasible), and monitor replacement of topsoil and/or seeding of special-status plant species after construction is completed.	DWR	Documentation on file with DWR	Prior to construction groundbreaking
MM-CULT-1	The Lead Agencies will prepare a treatment plan that provides measures for the management of identified "historic properties," "historical resources," and "unique archaeological resources" and potentially unevaluated cultural resources which cannot be avoided during Project-related ground-disturbances or other construction activities. The purpose of the treatment plan will be to establish a research design, methods, and guidelines for evaluations of unevaluated resources for potential listing on the NRHP and/or CRHR, and for mitigation of Project-related adverse effects and significant impacts to historic properties and historical resources located within the APE. The treatment plan will also describe a process of consultation with appropriate state and federal agencies, as well as with Native Americans who may have interests in historic properties and historical resources within the APE.	DWR	Documentation on file with DWR	Prior to construction groundbreaking

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Measure No.	Mitigation Measure	Responsible Party	Method of Verification	Timing of Verification
	Preservation in place, through methods such as redesign of relevant facilities to avoid destruction or damage to eligible cultural resources, capping resources with fill, or deeding resources into conservation easements, shall be the preferred method of mitigation where feasible. If these options are not feasible, the measures that are developed in the treatment plan will be followed.			
MM-CULT-2	<p>Prior to ground-disturbing construction, the Lead Agencies will implement the following mitigation measures:</p> <ul style="list-style-type: none"> The Lead Agencies will ensure that a cultural resources inventory is conducted that encompass the entirety of the APE. The Lead Agencies will ensure that the inventory scope of work is developed prior to any Project-related ground-disturbances and includes methods for pedestrian surveys, reviews of historic maps, documentation of identified resources, and other appropriate sampling methods. The survey methods, results, and recommendations will be detailed in a technical report of findings. For all identified resources, DWR and/or the appropriate Federal agencies will evaluate the resources to determine whether they are any of the following: <ul style="list-style-type: none"> Historical resources [State CEQA Guidelines Section 15064.5(a)] Unique archaeological resources under CEQA [California PRC Section 21083.2(g)] Historic properties (36 CFR 60.4) Resources eligible for other local registers as may be appropriate The results of the evaluations will be documented in an evaluation report that provides an assessment of CRHR and/or NRHP-eligible resources requiring treatment to mitigate adverse effects and significant impacts. The Lead Agencies will make such a determination if project construction would involve any of the following consequences: <ul style="list-style-type: none"> Demolish or materially alter the qualities that make the resource eligible for listing in the CRHR [State CEQA Guidelines Section 15064.5(b)(2)(A)(C)] Demolish or materially alter the qualities that justify the inclusion of the resource on a local register or its identification in a historical resources survey meeting the requirements of California PRC Section 5024.1(g) unless the Lead Agencies establish by a preponderance of evidence that the resource is not historically or culturally significant [State CEQA Guidelines Section 15064.5(b)(2)(B)] Alter, directly or indirectly, the qualities that make a resource eligible for listing in the NRHP [36 CFR 800.5(a)(1)] Demolish or materially impair the qualities that allow a resource to qualify as a unique archaeological site (California PRC Section 21083.2) 	DWR	Documentation on file with DWR	Prior to construction groundbreaking

Appendix P. Mitigation Monitoring and Reporting Program

Measure No.	Mitigation Measure	Responsible Party	Method of Verification	Timing of Verification
	<ul style="list-style-type: none"> For all resources qualifying as unique archaeological resources, historical resources, or historic properties that would be subject to significant impacts, the Lead Agencies would develop and implement a treatment plan, as described above in Mitigation Measure MM-CULT-1. All technical work will be led or supervised by professional cultural resources specialists who meet the Secretary of the Interior's qualification standards for archaeology, history, and/or architectural history/architecture as appropriate (per 36 CFR 61). 			
MM-CULT-3	<p>Prior to ground-disturbing construction, the Lead Agencies will include a cultural resources discovery plan in the contract conditions of the construction contractor, incorporating the following actions to be taken in the event of the inadvertent discovery of archaeological resources.</p> <ul style="list-style-type: none"> An archaeological monitor will be present to observe construction at geographic locations that are sensitive for unidentified cultural resources. Such locations consist of construction near identified sites (within a 100-foot radius around the known boundaries of identified resources) and where ground-disturbing construction would occur within 500 feet of major water features. In the event of an archaeological resources discovery, work will cease in the immediate vicinity of the find (typically 100 feet), based on the direction of the archaeological monitor or the apparent distribution of archaeological resources if no monitor is present. A qualified archaeologist will assess the significance of the find and make recommendations for further evaluation and treatment as necessary. Discovered resources will be mapped and described on DPR 523 forms. Mapping will be performed by recording data points with GPS hardware that can be imported and managed digitally. If it is determined that the discovery requires evaluation for the NRHP and/or CRHR or treatment to mitigate adverse effects or significant impacts, the mitigation measures to develop a treatment plan discussed above in MM-CULT-1 will be followed. 	DWR	Documentation on file with DWR	Prior to construction groundbreaking
MM-CULT-4	<p>The Lead Agencies shall provide preconstruction training for all construction personnel engaged in construction that have the potential to affect archaeological resources. This training will provide instruction on how to identify resources in the field and appropriate measures to be taken if a discovery or potential discovery occurs. The Lead Agencies will include a list of cultural resources staff that can respond to cultural resource discoveries, provide management direction following discoveries in the construction training materials, and provide this list and these discovery requirements to the supervisory field staff for the construction workers.</p>	DWR	Documentation on file with DWR	Prior to construction groundbreaking

Appendix P. Mitigation Monitoring and Reporting Program

Measure No.	Mitigation Measure	Responsible Party	Method of Verification	Timing of Verification
	Construction worker trainings in the form of tailgate meetings would be implemented to familiarize workers with common types of artifacts (stone flakes, charmstones, and historic debris-like bottles) and the procedures to follow in the event of a buried discovery.			
MM-CULT-5	<p>If human remains are discovered as part of a larger cultural deposit, the Lead Agencies and the construction contractors will coordinate with the county coroner and NAHC to make the determinations and perform the management steps prescribed in California Health and Safety Code Section 7050.5 and California PRC Section 5097.98. The provisions of these State laws apply unless discoveries occur on land owned or controlled by the Federal government. For discoveries on Federal land, the bulleted procedures for NAGPRA provided below shall be followed. Compliance with State law for discoveries occurring on private or State lands requires the following steps:</p> <ul style="list-style-type: none"> • Notification of the county coroner so the coroner may determine whether an investigation regarding the cause of death is required. If the coroner determines the remains are of prehistoric Native American origin, the coroner would notify the NAHC. • Upon notification, the NAHC would identify the MLD, and the MLD would be given the opportunity to reinter the remains with appropriate dignity. If the NAHC fails to identify the MLD or if the parties cannot reach agreement as to how to reinter the remains as described in California PRC Section 5097.98(e), the landowner would reinter the remains at a location not subject to further disturbance. The Project proponents would ensure the protections prescribed in California PRC Section 5097.98(e) are performed such as using conservation easements and recording the location with the relevant county and an information center of the CHRIS. 	DWR	Field verification	During construction
MM-AGR-1	<p>The following activities will be implemented where feasible to minimize adverse effects on existing Prime Farmland, Unique Farmland, and Farmland of Statewide Importance in production and limit the extent of the lands in these three categories that would be converted to non-agricultural uses.</p> <ul style="list-style-type: none"> • When selecting locations for staging areas and spoils sites, minimize the fragmentation of lands that are to remain in agricultural use and retain contiguous parcels of agricultural land of sufficient size to support their efficient use for continued agricultural production. • Purchase property interests in agricultural lands (e.g., conservation easements), requiring the preservation and/or enhancement of other land of similar agricultural quality and acreage, either directly or indirectly, to mitigate for permanently converted Prime Farmland, Unique Farmland, and Farmland of Statewide Importance. Where feasible, the agricultural conservation easements should be acquired in the county in which the conversions would take place, Yolo County. If there is not a sufficient supply of similar Prime Farmland, Unique Farmland, or Farmland of Statewide Importance in 	DWR	Documentation on file with DWR	Prior to construction groundbreaking

Appendix P. Mitigation Monitoring and Reporting Program

Measure No.	Mitigation Measure	Responsible Party	Method of Verification	Timing of Verification
	the county where the conversions would occur, the agricultural conservation easements may be obtained in a different county.			
MM-VIS-1	All new structures, including bridges, will be screened to soften the views of the facilities. Screening could include landscaping with shrubs, ground cover, vegetated berms, and floodplain restoration, which will make new crossing structures and facilities less visible from a distance. Natural colors and materials with low reflectivity also will be used to minimize the visual impact of these structures and, to the extent feasible, make them consistent with the existing character of the region. These structures will be constructed and landscaped in such a manner as to match the existing character and surrounding landscape.	DWR	Field verification	During construction
MM-TRAN-1	Periodically review and inspect roadway conditions along haul and construction vehicle routes, particularly unpaved roadways. Limited repairs will be made should roadway conditions deteriorate, including degradation such as aggregate loss along unpaved roads or roadway rutting.	DWR	Field verification	During construction
MM-TRAN-2	Create a road repair agreement with Yolo County and its Public Works Division prior to initiating project construction. This agreement will establish a formal understanding regarding restoration of county roadways to pre-project conditions should the Project cause impacts in excess of typical wear and tear on roadways used by construction vehicles. Pre-project conditions will be recorded and documented before Project construction starts to establish baseline roadway conditions that repairs will be expected to meet during post-construction restoration. Road repair measures may include, but not be limited to, chip sealing and reconstruction of any disturbed road shoulders.	DWR	Documentation on file with DWR	Prior to construction groundbreaking
MM-TRAN-3	Identify potential scheduling solutions to limit peak period travel on nearby highways or reduce the number of daily and hourly regional truck trips. These alternatives include: scheduling truck trips to occur during off-peak travel periods such as the middle of the day when traffic volumes are generally lower than the peak a.m. and p.m. periods; extending the truck haul schedule to reduce the riprap and RSP volume, and therefore the number of truck trips, being delivered daily to the construction site; and/or consideration of round-the-clock, extended weekend, or early delivery of material to allow for fewer daily truck trips to occur during the project schedule timeline. Following coordination efforts, when the contractor has identified their preferred scheduling alternative, the proposed solution shall be implemented and reviewed on a regular basis to ensure that fewer than 50 truck trips per hour are to be generated by Project construction activities, especially during peak a.m. and p.m. travel periods (typically 7 a.m. to 9 a.m. and 4 p.m. to 6 p.m.).	DWR	Field verification	Prior to and during construction

Appendix P. Mitigation Monitoring and Reporting Program

Measure No.	Mitigation Measure	Responsible Party	Method of Verification	Timing of Verification
MM-AQ-1	All unpaved roads from the construction areas to offsite sediment disposal areas will be covered with gravel to reduce fugitive dust emissions. Watering will also be maintained to adequately reduce emissions.	DWR	Field verification	During construction
MM-AQ-2	Impacts on air quality from construction and maintenance activities will be reduced by using Tier 4 construction equipment instead of the fleet average for the Sacramento Valley Air Basin.	DWR	Field verification	During construction
MM-AQ-3	Applicable to both construction and maintenance activities, all haul trucks, vendor trucks, or other vehicles operating on site with on-road engines will meet model year 2010 or better emission standards.	DWR	Field verification	During construction
MM-AQ-4	<p>As required by the Feather River AQMD, if construction emissions exceed the significance thresholds provided in Table 18-13, then the project must apply the following best available mitigation measures for the construction phase:</p> <ol style="list-style-type: none"> 1. All grading operations on a project shall be suspended when winds exceed 20 miles per hour or when winds carry dust beyond the property line despite implementation of all feasible dust control measures. 2. Construction sites shall be watered as directed by the Department of Public Works or Feather River AQMD as necessary to prevent fugitive dust violations. 3. An operational water truck shall be available at all times. Apply water to control dust as needed to prevent visible emissions violations and offsite dust impacts. 4. Onsite dirt piles or other stockpiled particulate matter shall be covered, wind breaks installed, and water and/or soil stabilizers employed to reduce windblown dust emissions. Incorporate the use of approved non-toxic soil stabilizers per manufacturer's specifications to all inactive construction areas. 5. All transfer processes involving a free fall of soil or other particulate matter shall be operated in such a manner as to minimize the free fall distance and fugitive dust emissions. 6. Apply approved chemical soil stabilizers per the manufacturers' specifications to all-inactive construction areas (previously graded areas that remain inactive for 96 hours), including unpaved roads. 7. To prevent track-out, wheel washers shall be installed where project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment shall be washed prior to each trip. Alternatively, a gravel bed may be installed as appropriate at vehicle and equipment site exit points to effectively remove soil buildup on tires and tracks to prevent or diminish track-out. 	DWR	Field verification	During construction

Appendix P. Mitigation Monitoring and Reporting Program

Measure No.	Mitigation Measure	Responsible Party	Method of Verification	Timing of Verification
	<p>8. Paved streets shall be swept frequently (water sweeper with reclaimed water recommended; wet broom) if soil material has been carried onto adjacent paved, public thoroughfares from the Project site.</p> <p>9. Provide temporary traffic control as needed during all phases of construction to improve traffic flow, as deemed appropriate by the Department of Public Works and/or California Department of Transportation, and reduce vehicle dust emissions. An effective measure is to enforce vehicle traffic speeds at or below 15 mph.</p> <p>10. Reduce traffic speeds on all unpaved surfaces to 15 mph or less and reduce unnecessary vehicle traffic by restricting access. Provide appropriate training, onsite enforcement, and signage.</p> <p>11. Reestablish ground cover on the construction site as soon as possible and prior to final occupancy through seeding and watering.</p> <p>12. Prohibit disposal by burning. Open burning is yet another source of fugitive gas and particulate emissions and shall be prohibited at the project site. No open burning of vegetative waste (natural plant growth wastes) or other legal, or illegal, burn materials (e.g., trash or demolition debris) may be conducted at the Project site. Vegetative wastes shall be chipped or delivered as waste to energy facilities (permitted biomass facilities), mulched, composted, or used for firewood. It is unlawful to haul waste materials off site for disposal by open burning.</p>			
MM-HAZ-1	The Lead Agencies and the contractor will prepare a CRMP that will include procedures to follow to identify soil contamination during excavation activities and the handling and disposal of any contaminated soil. The CRMP will also require DWR to obtain an opinion through the DOGGR Well Review Program prior to working near the sites. The CRMP will also identify procedures to follow for removal, handling, and disposal if underground storage tanks or other hazardous materials are found during construction of the site. The CRMP will be included in the final plans and specifications for project implementation.	DWR	Documentation on file with DWR	Prior to construction groundbreaking
MM-HAZ-2	In all construction contracts, the Lead Agencies will require the use of spark arrestors on all construction equipment and safety procedures when working near power lines to avoid accidental contact of construction equipment with the power line. The contract shall also include requirements for the contractor to educate all construction workers about the risk of starting a wildfire, how to avoid it, and who to contact in case a wildfire is started.	DWR	Documentation on file with DWR	Prior to issuing a construction contract
MM-HAZ-3	The Lead Agencies will meet with PG&E to determine the exact location of the pipeline and include the location on the plans. Safety measures will be included within the specifications. These measures will be included within the CRMP.	DWR	Documentation on file with DWR	Prior to issuing a construction contract

Appendix P. Mitigation Monitoring and Reporting Program

Measure No.	Mitigation Measure	Responsible Party	Method of Verification	Timing of Verification
MM-NOI-1	<p>A Noise and Vibration Control Plan (NVCP) will be developed by the construction and maintenance contractor prior to the start of any construction activities to address increased noise and vibration levels associated with Project implementation.</p> <p>The NVCP will identify the procedures for predicting construction and maintenance noise levels at sensitive receptors and describe the reduction measures and best management practices required to minimize construction noise. The NVCP noise mitigation measures will include but not be limited to:</p> <ul style="list-style-type: none"> • All construction equipment shall be stored in a designated staging area during the construction phase to eliminate daily heavy-duty truck trips on local roadways. • To achieve an hourly average noise level below 60 dBA, speed limits and limits on the number of passbys per hour shall be established and enforced for construction vehicle traffic on local roads adjacent to sensitive receptors to minimize traffic noise. • Sound attenuation will be used or constructed to minimize noise levels. Potential sound attenuation measures could include but are not limited to stationary barriers placed between the source(s) of construction noise and noise-sensitive receptors. The feasible measures will be determined by the construction contractor based on an initial evaluation of each construction site. • Contractor will be responsible for maintaining equipment to comply with noise standards (e.g., exhaust mufflers, acoustically attenuating shields, shrouds, or enclosures). • The public will be kept informed of the construction hours and days. • The contractor will provide contact information for filing complaints and respond to noise and vibration complaints. The contact information will be posted on the exterior of any sound barriers. • A pre-construction meeting will be held with contractors and project managers to confirm that noise mitigation procedures are in place. • All mitigation requirements will be included in bid documents and construction contracts. 	DWR	Documentation on file with DWR	Prior to construction groundbreaking or maintenance activities

P.3 List of Acronyms

AQMD – Air Quality Management District

APE – area of potential affects

BMPs – Best Management Practices

Cal-IPC – California Invasive Plant Council

CARB – California Air Resources Board

CDFW – California Department of Fish and Game

CESA – California Endangered Species Act

CEQA – California Environmental Quality Act

CHRIS – California Historical Resources Information System

CNDDDB – California Natural Diversity Database

CR – County Road

CRHR – California Register of Historical Resources

CRMP – Construction Risk Management Plan

CRR – Cultural Resources Report

dB – decibel

dBA – A-weighted decibel

DOGGR – California Department of Conservation, Division of Oil, Gas, and Geothermal Resources

DPR – California Department of Parks of Recreation

DWR – California Department of Water Resources

EIR – Environmental Impact Report

EIS/EIR – Environmental Impact Statement/ Environmental Impact Report

ESA – Endangered Species Act

FWWA – Fremont Weir Wildlife Area

GHG – Greenhouse House Gas

IWM – instream woody material

MLD – most likely descendent

MMRP – Mitigation and Monitoring Program

NAGPRA – Native American Graves Protection and Repatriation Act

NAHC – Native American Heritage Commission

NEPA – National Environmental Policy Act

Appendix P. Mitigation Monitoring and Reporting Program

NMFS – National Marine Fisheries Services

NRHP – National Register of Historic Places

NTUs – nephelometric turbidity units

NVCP – Noise and Vibration Control Plan

PG&E – Pacific Gas & Electric

PRC – Public Resources Code

Project – Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project

Reclamation – Bureau of Reclamation

RSP – rock slope protection

RWQCB – Regional Water Quality Control Board

SEL – sound exposure level

SPCCP – Spill Prevention, Control, and Countermeasure Plan

SRA – shaded riverine aquatic

TMDL – total maximum daily load

USACE – United States Army Corps of Engineers

USEPA – United States Environmental Protection Agency

USFWS – United States Fish and Wildlife Service

USGS – United States Geological Survey

Appendix Q
EISEIR Distribution List

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Appendix Q. EIS/EIR Distribution List

This appendix includes the distribution list for the Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR). Only names and affiliations, if applicable, are shown on this list. This list has been in development since the Notice of Intent and scoping meetings in 2013.¹

The Final EIS/EIR is available at <https://www.usbr.gov/mp/bdo/yolo-bypass.html>.

Copies of the Final EIS/EIR are available for public review at the following locations:

1. Bureau of Reclamation, Mid-Pacific Region, Regional Library, 2800 Cottage Way, Sacramento, CA 95825.
2. Bureau of Reclamation, Bay-Delta Office, 801 I Street, Suite 140, Sacramento, CA 95814.
3. Sacramento Public Library, 828 I Street, Sacramento, CA 95814.

The distribution list includes the following:

- Representatives from other Federal, State, and local agencies that commented or expressed interest in the project.
- Representatives from non-governmental organizations that attended public meetings, provided comments, or expressed interest in the project.
- Interested members of the public that attended public meetings, provided comments, or expressed interest in the project.

Q.1 Federal, Tribal, State, and Local Agencies

Table Q-1. Federal, Tribal, State, and Local Agencies Distribution List

Name	Agency
Aguilera, Jozal	California Department of Fish and Wildlife
Aimee Rutledge	Sacramento Valley Conservancy
Akers, Allan	City of Davis
Allen, Jennifer	Contra Costa Water District
Amrhein, Rochelle	California Department of Water Resources
Aquino-Carhart, Erin	California Department of Fish and Wildlife

¹ The U.S. Bureau of Reclamation (Reclamation) and the California Department of Water Resources (DWR) used scoping meetings and public hearing sign in sheets to help develop the distribution list. Some individuals that signed in did not provide email addresses or the handwriting was illegible. If a name or email address was missed, Reclamation and DWR have made the EIS/EIR available at identified locations and on Reclamation's website listed above.

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Name	Agency
Arakawa, Stephen	Metropolitan Water District of Southern California
Arrich, Jeremy	California Department of Water Resources
Bagby, Richard	Clarksburg Fire Protection District
Bahia, Manny	California Department of Water Resources
Bair, Lewis	Knights Landing Ridge Drainage District
Barajas, Federico	U.S. Bureau of Reclamation
Barker, Kelley	California Department of Fish and Wildlife
Bartlett, Tina	California Department of Fish and Wildlife
Beckwith, Randy	California Department of Water Resources
Beltran, Tara	State and Federal Contractors Water Agency
Bernardy, Todd	California Department of Water Resources
Berry, Michael	California Department of Water Resources
Bill, Laverne	Yocha Dehe Wintun Nation
Biondi, Oscar	State Water Resources Control Board
Birmingham, Thomas	Westlands Water District
Blacklock, Patrick	County of Yolo
Blodgett, Peter	U.S. Army Corps of Engineers
Boggiano, Reid	California State Lands Commission
Boyd, Stacy	Reclamation District 501
Brand, Marina	Delta Stewardship Council
Briggs, Kelly	California Department of Water Resources
Brooks, Megan	Delta Stewardship Council
Brown	Sacramento-Yolo Mosquito & Vector Control Dist.
Brumbaugh, Mariah	U.S. Army Corps of Engineers
Buckley, Andrea	Central Valley Flood Protection Board
Bugsch, Brian	California State Lands Commission
Busch, Bryan	Reclamation District 2068
Busch, Tim	City of Woodland
Bush, Josh	California Department of Fish and Wildlife
Buss, Stephanie	California Department of Fish and Wildlife
Cantrell, Scott	California Department of Fish and Wildlife
Cardoza, Manuel	Panoche Water District
Carpenter, Matt	Sacramento Area Council of Government
Carrothers, Ryan	California Department of Fish and Wildlife
Cartwright, Val	U.S. House of Representatives

Name	Agency
Cattaneo, Jeff	San Benito County Water District
Chamberlain, Duane	Yolo County Supervisor
Chew, Lori	California Department of Water Resources
Childers, Roberta	City of Woodland
Chung, Francis	California Department of Water Resources
Ciapponi, David	Westlands Water District
Cleak, Trevor	Central Valley Regional Water Quality Control Board
Clipperton, Neil	California Department of Fish and Wildlife
Collins, Allison	Metropolitan Water District of Southern California
Commandatore, Marc	California Department of Water Resources
Conner, Teresa	California Department of Water Resources
Cooke, Janis	Central Valley Regional Water Quality Control Board
Coolidge, Keith	CALFED Bay-Delta Program
Copelan, Joyce	California Department of Transportation
Crader, Phillip	Regional Water Quality Control Board
Culberson, Steve	Delta Stewardship Council
Currey, John	Dixon Resource Conservation District
Davenport, Jessica	Delta Stewardship Council
Davis, Luke	U.S. Bureau of Reclamation
Delgado, Marilyn	Yocha Dehe Wintun Nation
Dibble, Chad	California Department of Fish and Wildlife
DiGiorgio, Carol	California Department of Water Resources
Digregoria, John	U.S. Fish and Wildlife Service
Downs, John	California Department of Fish and Wildlife
Dutschke, Amy	U.S. Bureau of Indian Affairs
Dwyer, Amanda	California Department of Water Resources
Eakin, Michael	California Department of Fish and Wildlife
Ellrot, Brian	U.S. National Marine Fisheries Service
Emlen, Bill	Solano County
Enos-Nobriga, Cassandra	Delta Stewardship Council
Enstrom, Karen	California Department of Water Resources
Essex, Cheryl	California State Parks
Falaschi, Atomic	Panoche Water District

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Name	Agency
Fernando, R.	Metropolitan Water District of Southern California
Ferrara, Todd	California Natural Resources Agency
Foe, Chris	State Water Resources Control Board
Ford, Gina	California Department of Fish and Wildlife
Ford, Kristin	California Department of Water Resources
Franklin, Maggie	Sacramento County
Fredrickson, Justin	California Farm Bureau
Freeman, Larry	San Joaquin River Exchange Contractors Water Authority
Freeman, Russ	Westlands Water District
Frink, Ted	California Department of Water Resources
Fuentes, Jerry	U.S. Army Corps of Engineers
Gaines, Terri	Delta Stewardship Council
Gallagher, Leslie	Central Valley Flood Protection Board
Gentile, Donna	Water Resources Association of Yolo County
Goforth, Kathleen Martyn	U.S. Environmental Protection Agency
Goi, Nicole	Sacramento Municipal Utilities District
Goldie, Beau	Santa Clara Valley Water District
Goncalves, Kim	California Natural Resources Agency
Goodman	Sacramento-Yolo Mosquito & Vector Control Dist.
Gordon, Stephanie	U.S. Environmental Protection Agency
Goulart, Roberta	Solano County
Grant, Colin	U.S. Fish and Wildlife Service
Greci, Thomas	Madera Irrigation District
Griggs, Pamela	California State Lands Commission
Gutierrez, Jose	Westlands Water District
Guy, David	Sacramento Valley Water Quality Coalition
Hack, Catherine	Sacramento County
Hamamoto, Lesley	California Department of Water Resources
Hampton, Douglas	U.S. National Marine Fisheries Service
Hann, Paul	State Water Resources Control Board
Hannigan, Erin	Solano County
Hardesty, Mike	Reclamation District 2068
Harrell, Bill	California Department of Water Resources
Hastings, Lauren	Delta Stewardship Council

Name	Agency
Hausner, Carl	U.S. Coast Guard
Hearnley, Diana	California State Lands Commission
Heath, Arianne	California Department of Water Resources
Hemus, Bob	U.S. Forest Service
Hendricks, Karen	Reclamation District 730
Heraty, Joanne	Yolo County Resource Conservation District
Hirahara, Howard	Western Area Power Administration
Hogan, Phil	U.S. Department of Agriculture
Holley, Sheena	California Department of Water Resources
Holman, Gayle	Westlands Water District
Hosea, Bob	California Department of Fish and Wildlife
Houdesheldt, Bruce	Sacramento Valley Water Quality Coalition
Ingram, Campbell	Delta Conservancy
Isola, Craig	U.S. Fish and Wildlife Service
Jameson, Kendrick	City of West Sacramento
Jones, Matt	Yolo-Solano Air Quality Management District
Key, Nathan	Natural Resource Conservation Service
Kirchner, Alicia	U.S. Army Corps of Engineers
Kirkland, Marianne	California Department of Water Resources
Kubo, Hideaki	California Department of Fish and Wildlife
Kucharski, Rhiannon	U.S. Army Corps of Engineers
Kuenster, Gail	California Department of Water Resources
Kundargi, Ken	California Department of Fish and Wildlife
Kuttel, Jeanne	California Department of Water Resources
Kwasny, Dean	U.S. Department of Agriculture
Lang, Kyle	Reclamation District 1600
Laputz, Adam	State Water Resources Control Board
Lasso, Corey	California Department of Water Resources
Lee, Cyndi	Sacramento County
Lee, Elizabeth	Central Valley Regional Water Quality Control Board
Leonard, Kimberlee	U.S. Army Corps of Engineers
Lester, Aric	California Department of Water Resources
Lombardi, Kyle	U.S. House of Representatives
Lowrey, Angela	Delta Diablo

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Name	Agency
Lowrie, John	California Department of Conservation
Luke, Brian J	U.S. Army Corps of Engineers
Luken, Mike	Sacramento Yolo Port Commission (borders)
Lynn, Elissa	California Department of Water Resources
Lyons, Amy	California Department of Water Resources
MacDonald, Clyde	Central Valley Flood Protection Board
Manley, Todd	Northern California Water Association
Marcinkevege, Cathy	U.S. National Marine Fisheries Service
Markham, Pat	Reclamation District 765
Martarano, Steve	U.S. Fish and Wildlife Service
Martasian, David	California Department of Water Resources
Martin, Ramon	U.S. Fish and Wildlife Service
Martinelli, Greg	California Department of Fish and Wildlife
Martinez, Josh	California Department of Water Resources
Massa	Colusa Basin Drainage District
Matica, Zoltan	California Department of Water Resources
Mauro, Andrea	Central Valley Flood Protection Board
McBride, Sarah	U.S. Bureau of Reclamation
McCord, Stephen	Delta Tributaries Mercury Council
McDowell, Ray	California Department of Water Resources
McNearney, Leah	California Department of Water Resources
McNerney, John	City of Davis
Meisler, Marty	Metropolitan Water District of Southern California
Messer, Dean	California Department of Water Resources
Milbury, James	National Oceanic and Atmospheric Administration
Mitchell, Carrie	Colusa Drain Mutual Water Company
Mizuno, Frances	San Luis & Delta-Mendota Water Authority
Morris, Patrick	State Water Resources Control Board
Muha, Andrew	U.S. Army Corps of Engineers
Muhar, P.E., Jeevan	Arvin-Edison Water Storage District
Muir, Robert	Metropolitan Water District of Southern California
Nagy, Meegan	Reclamation District 108
Navasero, Anthony	Delta Stewardship Council
Nemeth, Karla	California Natural Resources Agency
Nepstad, Michael	U.S. Army Corps of Engineers

Name	Agency
Newcomb, James	California Department of Water Resources
Nguyen, Jennifer	California Department of Fish and Wildlife
Nichols, Heather	Yolo County Resource Conservation District
Nichols, Heather	Yolo County Resource Conservation District
Nolte, Monica	California Department of Water Resources
Norris, Cindy	City of Woodland
Nottoli, Donald	Sacramento County
Nurmi, Francesca	California Department of Water Resources
O'Halloran, Tim	Yolo County Flood Control and Water Conservation District
Olsen, Randy	U.S. Army Corps of Engineers
Olswang, Mary	California Department of Fish and Wildlife
Orloff, Leah	Contra Costa Water District
Ormonde, Bobbie	Westlands Water District
Ortega, Ricardo	Grasslands Water District
Ottemoeller, Stephen	Friant Water Authority
Pate, Thomas	Solano County Water Agency
Pearson, Jessica	Delta Stewardship Council
Phillis, Corey	Metropolitan Water District of Southern California
Philp, Tom	Metropolitan Water District of Southern California
Pogledich, Philip	Yolo County
Polanco, Julianne	State Office of Historic Preservation
Potter, Loredana	U.S. Bureau of Reclamation
Powderly, John	City of West Sacramento
Provenza, Jim	Yolo County Supervisor
Provenza, Jim	Yolo Habitat Conservancy
Pruner, Mark	Clarksburg Fire Protection District
Purdy, Colin	California Department of Fish and Wildlife
Rahilly, Patrick	Grasslands Water District
Ramos, Dan	Reclamation District 827
Rea, Maria	U.S. National Marine Fisheries Service
Redler, Yvette	U.S. National Oceanic and Atmospheric Administration
Reed, Richard	Yolo County
Rexroad, Matt	Yolo County Supervisor

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Name	Agency
Ridgley, Jessica	Northern California Water Association
Rivera, Itzia	Central Valley Flood Protection Board
Roberts, Michael	California Department of Water Resources
Rocco, Chris	California Department of Fish and Wildlife
Rogers, Pat	CALFED Bay-Delta Program
Rose, Chris	Solano County Resource Conservation District
Rubin, Jon	San Luis & Delta-Mendota Water Authority
Sabatini, Elisa	Yolo County
Sadler, Lynn	California Department of Boating and Waterways
Sagara, Denise	Yolo County Farm Bureau
Saja, Rajat	California Department of Water Resources
Sanchez, Theresa	U.S. Bureau of Reclamation
Sandburg, Nancy	U.S. Army Corps of Engineers
Sanford, Roland	Solano County Water Agency
Sanger, Anne	U.S. House of Representatives
Sarmiento, James	Yocha Dehe Wintun Nation
Saylor, Don	Yolo County Supervisor
Schmutte, Curtis	Metropolitan Water District of Southern California
Scholl	Sacramento-Yolo Mosquito & Vector Control District
Scholl, Marty	Sacramento-Yolo Mosquito & Vector Control District
Schultz, Sara	U.S. Army Corps of Engineers
Sereno	Contra Costa Water District
Serup, Bjarni	California Department of Fish and Wildlife
Shaffer, Kevin	California Department of Fish and Wildlife
Sheely, Megan	California Department of Water Resources
Simmons, Zachary	U.S. Army Corps of Engineers
Sloop, Christina	California Department of Fish and Wildlife
Snodgrass, Nancy	California Department of Water Resources
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Spanos, Katy	California Department of Water Resources
Spering, Jim	Solano County
Spezia, Julie	Metropolitan Water District of Southern California

Name	Agency
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Stearns, Roy	California Department of Parks and Recreation
Stein, Russell	California Department of Water Resources
Stoddard, Jeff	California Department of Fish and Wildlife
Suarez, Carlos	Natural Resource Conservation Service
Sugar, Sarah	California State Lands Commission
Sun, Katherine	U.S. Fish and Wildlife Service
Sutton, Jeff	Tehama Colusa Canal Authority
Swinney, Heather	U.S. Fish and Wildlife Service
Tabor, Ward	California Department of Water Resources
Tadlock, Stephanie	Regional Water Quality Control Board
Takehara, James	Northern California Power Agency
Terry, Melinda	California Central Valley Flood Control Association
Terry, Melinda	North Delta Water Agency
Thao, Mike	Central Valley Flood Protection Board
Thomas, Steve	U.S. National Marine Fisheries Service
Thomason, Christie	Delta Stewardship Council
Thomson, Skip	Solano County
Tiffany, Cindy	North Delta Water Agency
Tjernell, Kris	California Natural Resources Agency
Toland, Tanis	U.S. Army Corps of Engineers
Tommerason, Todd C.	Laugenour and Meikle
Tsai, Eric	California Department of Water Resources
Tucker, Mike	U.S. National Marine Fisheries Service
Urias, Josh	California Department of Water Resources
Van Rijn, David	U.S. Bureau of Reclamation
Vasquez, John	Solano County
Villegas, Oscar	Yolo County Supervisor
Vink, Erik	Delta Protection Commission
Wait, Jacqueline	California Department of Water Resources
Wallace, Jim	Colusa Drain Mutual Water Company
Walsh, Matt	Solano County
Walthall, Brent	Kern County Water Agency
Washburn, Timothy	Sacramento Area Flood Control Agency
Weymiller, Melissa	U.S. Army Corps of Engineers

Name	Agency
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Woodruff, Veronica	Grasslands Water District
Worthy, Cheri	San Luis & Delta-Mendota Water Authority
Wrynski, Jeanette	Yolo County Resource Conservation District
Yankovich, Mike	Solano County
Yarris, Greg	U.S. Fish and Wildlife Service
Yee, Marcus	California Department of Water Resources
Yip, Garwin	U.S. National Marine Fisheries Service
Young, John	Yolo County Agricultural Commissioner
Young, Kip	California Department of Water Resources
Yuhas, Steve	U.S. Army Corps of Engineers
Zezulak, Dave	California Department of Fish and Wildlife
Zorn, Sarah	California Department of Water Resources

Q.2 Non-Governmental Organizations

Table Q-2. Non-Governmental Organizations Distribution List

Name	Group
Aaron, Will	Ducks Unlimited
Anderson, Kent	Putah Creek Council
Barrigan-Parrilla, Barbara	Restore the Delta
Bontadelli, Pete	Yolo Basin Foundation
Brice, Ann	Yolo Basin Foundation
Brobeck, James	AquAlliance
Buttner, Paul	California Rice
Cain, John	American Rivers
Carlson, John	California Waterfowl
Clark, Michele	Yolo Land Trust
Coplin, Kelly	Natural Resource Defense Council
Ealy, Ken	Yolo Audubon
Eden, Devi	Putah Creek Council
Hanak, Ellen	Public Policy Institute of California
Hanson, Mary	Tuleyome
Haugen, Steve	Kings River Water Association

Name	Group
Heaton, Colby	California Waterfowl
Hennelly, Mark	California Waterfowl Association
Jorgensen, Holly	Sacramento River Watershed Program
Katz, Jacob	Caltrout
Kulakow, Robin	Yolo Basin Foundation
Macaux, Amy	Natural Resources Defense Council
Marovich, Rich	Lower Putah Creek Coordinating Committee
McCreary, Jeff	Ducks Unlimited
McManus, John	Golden Gate Salmon Association
Messerli, Jake	California Waterfowl
Nelson, Barry	Natural Resource Defense Council
Obegi, Doug	Natural Resources Defense Council
Oppenheim, Noah	Pacific Coast Federation of Fisherman's Associations and Institute for Fisheries Resources
Ozonoff, Martha	Yolo Basin Foundation
Pachi, James	Friends of Swainson's Hawk
Petrack, Kevin	Ducks Unlimited
Phillips, Paul	California Waterfowl
Pool, Dick	Water4Fish
Poole, Kate	Natural Resources Defense Council
Richards, Jeff	Coastside Fishing Club
Ross Merz, Lucas	Sacramento River Preservation Trust
Rothert, Steve	American Rivers
Santerre, Chad	California Waterfowl
Schneider, Bob	Tuleyome
Stone, James	Nor-Cal Guides and Sportsmen Association
Stork, Ronald	Friends of the River
Vlami, Barbara	AquAlliance
Volberg, Jeffrey	California Waterfowl
Wade, Michael	California Farm Water Coalition
Williams, Amy	Putah Creek Council
Young, Karin	Putah Creek Council
	California Water Alliance

Q.3 Individuals

Table Q-3. Individuals Distribution List

Name
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Arendt, Ronald
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Barraza, Gustavo
Bauman, Larry
Beam, John
Blake, Cary
Bontadelli, Pete
Bovee, Connor
Bowles, Chris
Boxall, Bettina
Breitler, Alex
Brennan, John
Brock, Mike
Brown, Doug
Brown, Doug
Bruno, Dominic
Buck, Byron
Burke, Garance
Burn, Joshua
Busch, Bryan
Calderon, Juan
Caldwell, Doug
Calfee, Kent
Campbell, Chris
Candee, Hal
Cannon, Tom
Cardozo, Dan
Cathey, Kyla

Name
Chedester, Steve
Clemens, Joe
Cline, Harry
Coil, John
Comstock, Michael
Constable, Daniel
Cosio, Bill
Cummings, Justin
Dadigan, Marc
Dalldorf, Chuck
Daly, Barbara
Damion, Curtis
Davis, Debbie
Delo, Stacey
Denton, Richard
Des Jardins, Deirdre
DeWit, Jack
DeWit, Mike
Doud, Charles
Dudley, Chuck
Dupuis, Phil
Eddy, David
Edson
Edson, John
Edwards, Austin D.
Ehrke, Garth
Empelo, Mae Ryan
Engilis, Andy
Fairbanks, John
Fennie, Paige
Fimrite, Peter
Firpo, Sandra
Fleenor, Bill and Judy
Franson, Paul
Frerichs, Lucas

Appendix Q. EIS/EIR Distribution List

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Gabriel, Amy
Gaines, Bill
Gaines, Phil
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Goodell, Dick
Gorman, Kyle
Hall, Mike
Hanner, Richard
Hanspeter, Walter
Hearden, Tim
Heinz, Walter "Wally"
Hilliard, Carl
Hostler, Allie
Howard, John
Howell, Scott
Huber, Patrick
Hughes, Sabrina
Humphrey, Joan
Huntington
Jagt, Katie
James, Emily
Jennings, Steve
Julian, David
Kassis, Greg
Katz, David
Kepner, Maya
Kepner, Maya Thompson
Keppen, Daniel
King, Mike
Kleary, Mike
Kohlhorst, Dave
Kolar, Marge
Krizo, Jacqui
Kuechler, Jack

Name
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Lang, Bruce
Larrabee, Jason
Leeman, Linda
Legakis, John
Legakis, John
Levitz, Susan
Leydecker, Byron
Lien-Mager, Lisa
Lightman, David
Little, Jessica
Locke, Cathy
Lodinews, Kyla
Lopez, Salvador
Lorenzen, Jim
Marchand, Petrea
Margarite, Gus
Martinelli, Philip
Martinez, Analisa
Massa, Gene
McEwan, Dennis
McKinley, Jesse
Membrino, Joseph R.
Mendoza, Tiffany
Metes, Jen
Mick and Katherine Klasson / Holmes
Mohr, Selby
Morrow, Robert
Moses, John
Moyle, Peter
Nagy, Eric
Newmiller, Jeannette
Nicholas, Rebecca
Norgaard, Ingrid
Odell, Robert E.

Appendix Q. EIS/EIR Distribution List

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Olson, David
Ongaro, Dean
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Peabody, Ross
Pearce, Laer
Pettis, Sandy
Pollock, Herbert
Pollock, Lynnel
Pruner, Mark
Punia, Jay
Purchia, Robyn
Quinn, Timothy
Raez, Judy
Reinhardt, Ric
Reinhart, Mike
Renschler, Peggy
Rodgers, Katie
Rogers, Paul
Russell, Charles
Schene, Tom
Schifferle, Patricia
Schultz, EJ
Schulz, Peter
Shively, Kari
Smith, Tim
Sommer, Lauren
Soncarty, Chris
Souza, Christine
Stanley, Lance
Stapley, Garth
Stevens, Don
Stokely, Tom
Stone, Peter Wesley

Name
Suard, Nicole
Swanston
Swanston, Bob
Swanston, Marty
Tadlock, Ron
Te Velde, David
Thompson, Dan
Thompson, Don
Thompson, Steve
Thomson, Gus
Toscano, Joann
Truan, Melanie Allen
Unger, Sophia
Vink, Erik
Weger, Lisa
Will, Matt
Wilson
Zenger, Phyllis

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Yolo Bypass Salmonid Habitat and Fish Restoration Project

10 PERCENT HYDRAULIC IMPACT ANALYSIS (HIA) OF ALL ALTERNATIVES

REPORT

APRIL 2019

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1 Purpose

The purpose of this document is to provide a summary of the ten percent hydraulic impact analysis (HIA) of the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project alternatives.

2 Project Alternatives Description

Chapter 2 of the EIS/EIR provides greater detailed descriptions of components and operations of all the alternatives than provided in this section.

The EIS/EIR evaluated 6 alternatives to potentially implement for the project:

- Alternative 1 – East Side Gated Notch
- Alternative 2 – Central Gated Notch
- Alternative 3 – West Side Gated Notch
- Alternative 4 – West Side Gated Notch – Managed Flow
- Alternative 5 – Central Multiple Gated Notches
- Alternative 6 – West Side Large Gated Notch

Table 1 : Summary of Alternatives

Components	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
Maximum design flow (cubic feet per second [cfs])	6,0000	6,000	6,000	3,000	3,400	12,000
Gated notch and channel location	East	Central	West	West	Central (Multiple)	West
Supplemental fish passage	West	West	East	East	West	East
Downstream channel improvements	X	X	X	X		X
Agricultural road crossing 1	X	X	X	X	X	X
Tule Canal water control structures				X		
Tule Canal floodplain improvements (program level)					X	
Closure date for inundation flows	March 15	March 15	March 15	March 15 or March 7	March 15	March 15

Alternative 1

Alternative 1 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 eastern alignment is shown in Figure 1. 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 of 32 feet. Water would be

able to flow through the gated notch between November 1 through March 15th, during periods when the river water level is high enough to gravity flow through the headwork structure.

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 allow flows up to 6,000 cfs, depending on Sacramento River elevation, through the gated notch prior to Fremont Weir overtopping 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. The supplemental fish passage structure will allow Fremont Weir's energy dissipation basin to drain back to the Sacramento after an overtopping event by opening a gate and would not allow additional water to flow into the Yolo Bypass. Therefore, the supplemental fish passage feature was not included in this analysis.

Alternative 2

Alternative 2 would provide a new gated notch through Fremont Weir like the notch described for Alternative 1. The primary difference between Alternatives 1 and 2 is the location of the notch; Alternative 2 would site the notch near the center of Fremont Weir. Figure 1 shows the central alignment. This gated notch would have similar flows and operations as Alternative 1 but would have an invert elevation that is higher (14.8 feet). The invert of this alternative was adjusted for the river slope from Alternative 1 to the central location, which is upstream of Alternative 1. The primary difference between Alternatives 1 and 2 is the location of the notch, hence HIA analysis is not performed as the impacts would be similar to the Alternative 1.

Alternative 3

Alternative 3 would provide a new gated notch through Fremont Weir like the notch described for Alternative 1. The primary difference between Alternatives 1 and 3 is the location of the notch; Alternative 3 would site the notch near the west side of Fremont Weir. Figure 1 shows the west alignment. This gated notch would have similar flows and operations as Alternative 1 but would have an invert elevation that is higher (16.1 feet). The invert of this alternative was adjusted for the river slope from Alternative 1 to the western location, which is upstream of Alternative 1. The primary difference between Alternatives 1 and 3 is the location of the notch, hence HIA analysis is not performed as the impacts would be similar to the Alternative 1.

Alternative 4

Alternative 4 and Alternative 3 have the same headwork structure and alignment. The gates of Alternative 4 would be used to limit project flows to 3,000 cfs prior to Fremont Weir overtopping. In addition to the headwork structure at Fremont Weir, Alternative 4 proposes two water control structures and a series of berms to manage flows (see Figure 2 and 3).

The managed floodplains for Alternative 4 use structures and berms to increase flooded habitat in specific areas at lower discharges than used in most of the alternatives. The lower discharges decrease the flooding in areas outside of the managed floodplains. The berms are designed to help maintain a target WSE in each floodplain area but not significantly impede large flood events.

The Knaggs managed floodplain attempts to maintain a WSE of 21.5 feet. **Figure 4** shows the features used to manage the WSE. A proposed berm on the south and east sides of the area pond the water in the floodplain. The berm includes notches that help maintain the target WSE. The proposed inflatable dam in the Tule Canal is raised to back water up and onto the floodplain but is lowered if the floodplain WSE

exceeds the target (during a large flood). The discharge in the bypass weir is around 300 cfs at the target WSE. A channel in the 2D area drains standing water once the flood has receded.

The Conaway managed floodplain attempts to maintain a WSE of 17.5 feet. **Figure 5** shows the configuration for this area. The proposed berm, inflatable dam, bypass weir, and drainage channel have the same functions as those in the Knaggs managed floodplain. The Conaway area also includes an additional outflow weir that helps to drain the much larger floodplain area to meet the target WSE or at the end of the inundation period.

Alternative 5

Details about Alternative 5 configuration is presented in cbec's TM (cbec, 2016). Alternative 5 includes three (3) intakes (comprised of a combination of a combination of box culverts), three (3) transport channels between the intakes and a floodplain channel / swale complex, and roughened channel and overbank needed to create desired tailwater condition at the intake for optimal fish passage (Figure 6).

Alternative 6

Alternative 6 follows western alignment as shown in **Figure 1** like Alternatives 3 and 4 and has an invert elevation of 16.1 feet. It was originally designed to achieve a maximum design flow of 12,000 cubic feet per second (cfs) while maximizing the range of Sacramento River operational stages. It is to be noted that these alternative alignments connect the upper Tule Canal to the Sacramento River. The primary purpose of the hydraulic design is to create a hydraulic connection between the Sacramento River and the Yolo Bypass that satisfies fish passage criterion for the largest range of flows in the Sacramento River. The hydraulic design consists of four key features, which are a headworks control structure, a habitat shelf, inlet channel, and an outlet channel, each of which are applied to different channel alignments.

3 Hydrology

Alternatives 1, Alternative 5 and Alternative 6

The Central Valley Hydrology Study (CVHS) was used in this study. The intent was to identify a CVHS flow dataset that would produce a flow at the Fremont Weir that is similar to its design capacity of 343,000 cfs (CVFPP, 2016/ DWR, 2010a). The CVHS 1997 storm pattern scaled to 85% produces WSEs close to the 1957 design profiles in Yolo Bypass, Sacramento River, and the streams in Delta (DWR DFM communication), was found to produce 353,660 cfs flow over the Fremont Weir, which is slightly (~3%) higher than the design capacity. Therefore, CVHS 1997 storm pattern with 85% scaling was chosen as the hydrology for this study (Email correspondence with DWR Division of Flood Management dated 4/8/2016).

Alternative 4

The 1997 event hydrology (December 29, 1996 through January 4, 1997) was used for this study. The observed WSE at the gauge for the Sacramento River on the west side of the Fremont Weir peaked on January 2, 1997 with a stage of 41.4 feet NAVD88. The observed flow hydrograph of the Fremont Weir spill to the Yolo Bypass has double peaks, first around 318,000 and second around 319,000 cfs (see **Figure 7**). The observed stage and flow data were acquired from the CVFED HEC-RAS model. This is also consistent with the USACE's Common Features Sacramento River Basin HEC-RAS Model calibrated to 1997 event (Release 3 dated 04/2011). For details of the hydrology, refer to the Hydrodynamic Modeling Report of YBSHRFP project (California Department of Water Resources, 2017).

4 Hydraulic Model

Alternatives 1, Alternative 5 and Alternative 6

The Central Valley Floodplain Evaluation and Delineation (CVFED) HEC-RAS model of the Sacramento River Flood Control Project was used for this HIA study. The CVFED HEC-RAS model and documentation are available from DWR's Library of Models as Model No. 14001, Combined Upper and Lower Sacramento River. This CVFED model was developed using HEC-RAS version 4.2 (Beta dated 2013.08.01). HEC-RAS is capable of simulating one-dimensional (1D) unsteady flow calculations through a full network of open channels. The CVFED HEC-RAS model and all the results are referenced in the Universal Transverse Mercator Zone 10 coordinate horizontal system and the North American Vertical Datum of 1988 (NAVD88). All units are in U.S. survey feet. The geometry refinements to reflect the Existing and Project conditions are described in the following sections.

Alternative 4

Unlike HIA analyses of other EIS/EIR alternatives that used 1-D HEC-RAS model, HIA analysis of Alternative 4 was performed using 2-D hydrodynamic modeling. This was done as the 2-D model would produce accurate representation and impacts of managed floodplain associated with Alternative 4, particularly in the Knaggs and Conaway Ranch areas.

The 1D/2D hydrodynamic model, developed using TUFLOW Classic by DWR in collaboration with HDR and cbec for the YBSHRFP project, was used for this study. A detailed description of (i) TUFLOW's selection as the best available tool for this project's purpose, (ii) model domain, (iii) model geometry, (iv) hydrology, (v) hydraulics, (vi) surface roughness, and (vii) model assumptions are provided in the TUFLOW hydrodynamic modeling report (California Department of Water Resources, 2017). Hence, those topics are not repeated in this TM. The TUFLOW model and all the results are referenced in the Universal Transverse Mercator Zone 10 coordinate horizontal system and the North American Vertical Datum of 1988 (NAVD88). All units are in U.S. survey feet.

5 CVFED HEC-RAS Model Geometry Changes in Project Alternatives

5.1 Alternative 1

5.1.1 Modifications to the Fremont Weir (FW) to represent headwork (HW) structure

The existing Denil type fish ladder (4' wide and 6' high with invert at 26') was left unchanged. The HW structure for Alternative 1 consists of three bays (one main bay with 34' width and 15' height, and two secondary bays, each with 27' width and 11' height). The invert of the main bay is set at 14', and the two secondary bays are set on an elevated channel bench of 4 feet above the design invert of the main bay. No gate logic was used thereby creating a scenario where gates are fully open. The roughness coefficients represent that of concrete with rip-rap/ESM placed at the bottom to mimic natural channel bed. The HEC-RAS model representation of the HW structure is shown in Figure 8.

5.1.2 Modifications to the cross sections upstream of FW to represent inlet transition

The inlet transition is designed to decrease the energy of the flow and increase the river stage to the desirable elevation at the upstream side of the headworks control structure. The inlet channel does not taper down to a smaller cross-sectional area at the HW structure. The transition is constructed entirely of concrete for the length of the transition.

Two cross sections immediately u/s of FW were modified in the HEC-RAS model to represent the inlet transition, namely XS 56.708 and 56.707 (in YOL/R1 reach). A typical cross section of the inlet transition is shown in Figure 9.

5.1.3 Modifications to the cross sections downstream of FW to represent outlet channel

Outlet channel geometric design is based on USACE Hydraulic Design of Flood Control Channels EM 1110-2-1601. For Alternatives # 1, the outlet channel consists of a trapezoidal design with an interior channel bench. Both channel bottom and bench are designed to be 30' wide. The side slopes from channel bottom to the channel bench and to adjacent grade daylight are 3(H):1(V). The channel bench is placed along the left side of the channel (looking downstream) and will maintain an elevation 4 ft above the main channel invert.

The outlet channel spans from the FW to the Tule Pond. Accordingly, three cross sections were modified in the existing condition HEC-RAS geometry, namely XS 56.649, 56.507, and 56.311 (all in YOL/R1 reach). A typical cross section of the outlet channel is shown in Figure 10.

5.1.4 Modifications to the agricultural crossings

Agricultural crossing 1: Left unchanged from existing condition and modeled as a cross section (YOL/R1/55.092)

Agricultural crossing 2: Modified per design as shown in **Figure 11**. Agricultural crossing 2 has been represented in the HEC-RAS model as cross section (YOL/R1/54.623) with 144 feet width (equivalent to 6 box culverts, each with 24 feet span). The invert is at 14 feet elevation. A HEC-RAS schematic of agricultural crossing # 2 has been provided in **Figure 12**.

Agricultural crossing 3: Removed.

Agricultural crossing 4: Left unchanged from existing condition. Agricultural crossing # 4 has been represented in the HEC-RAS as a cross-section (YOL/R1/43.676) with cross-sectional flow area obstruction to the elevation of 14. A HEC-RAS schematic of agricultural crossing # 4 has been provided in **Figure 13**.

5.2 Alternative5

5.2.1 Modifications to the Fremont Weir (FW) to represent headwork (HW) structure

The existing Denil type fish ladder (4' wide and 6' high with invert at 26') was left unchanged. cbec's TM says the following on gate operations – "Intake D gates operate from 26.6 ft to 31.7 ft, which is the just below the crest of the Fremont Weir. Above 29 ft, Intake D gates begin to close at higher river levels to restrict flows through the gates just prior to Fremont Weir overtopping. While the velocities exceed passage criteria above 29 ft and flows approach 3,900 cfs, a minimum of six (6) gates should remain open to prevent supercritical flow within the culverts" (cbec, 2016). Since this is the final gate configuration immediately prior to an overtopping event, the same configuration has been chosen as the headwork (HW) structure design in the Fremont Weir for Alternative 5. Accordingly, the HW structure for Alternative 5 consists of six 10' W x 7' H box culverts with an invert set at 23 feet and are modeled as fully open. The roughness coefficients represent that of concrete with rip-rap/ESM placed at the bottom to mimic natural channel bed. The HEC-RAS model representation of the HW structure is shown in Figure 14.

5.2.2 Modifications to the cross sections upstream of FW to represent inlet transition

Since the headwork structure falls in an already low point of the upstream cross sections, no changes were made to the two cross sections immediately u/s of FW were modified in the HEC-RAS model to represent the inlet transition, namely XS 56.708 and 56.707 (in YOL/R1 reach).

5.2.3 Modifications to the cross sections downstream of FW to represent outlet channel

Outlet channel geometric design is based on USACE Hydraulic Design of Flood Control Channels EM 1110-2-1601. For Alternatives # 5, the outlet channel conforms to the design documented in cbec's TM on Alternative 5 (cbec, 2016). The outlet channel spans from the FW to the Tule Canal at Agricultural Road Crossing 1. Accordingly, nine cross sections were modified in the existing condition HEC-RAS geometry, namely XS 56.649, 56.507, 56.311, 56.124, 55.938, 55.752, 55.565, 55.379, and 55.192 (all in YOL/R1 reach).

5.2.4 Modifications to the agricultural crossings

Agricultural crossing 1: Left unchanged from existing condition and modeled as a cross section (YOL/R1/55.092)

Agricultural crossing 2: Modified per design as shown in **Figure 11**. Agricultural crossing 2 has been represented in the HEC-RAS model as cross section (YOL/R1/54.623) with 144 feet width (equivalent to 6 box culverts, each with 24 feet span). The invert is at 14 feet elevation. A HEC-RAS schematic of agricultural crossing # 2 has been provided in **Figure 12**.

Agricultural crossing 3: Removed.

Agricultural crossing 4: Left unchanged from existing condition. Agricultural crossing # 4 has been represented in the HEC-RAS as a cross-section (YOL/R1/43.676) with cross-sectional flow area obstruction to the elevation of 14. A HEC-RAS schematic of agricultural crossing # 4 has been provided in **Figure 13**.

5.3 Alternative 6:

5.3.1 Modifications to the Fremont Weir (FW) to represent headwork (HW) structure

The existing Denil type fish ladder (4' wide and 6' high with invert at 26') was left unchanged. The HW structure for Alternative 6 consists of five equal sized bays of 40' width and 13.11' height, the invert being set at 16.1'. No gate logic was used thereby creating a scenario where gates are fully open. The roughness coefficients represent that of concrete with rip-rap/ESM placed at the bottom to mimic natural channel bed. The HEC-RAS model representation of the HW structure is shown in Figure 15.

5.3.2 Modifications to the cross sections upstream of FW to represent inlet transition

The inlet transition is designed to decrease the energy of the flow and increase the river stage to the desirable elevation at the upstream side of the headworks control structure. The inlet channel does not taper down to a smaller cross-sectional area at the HW structure. The transition is constructed entirely of concrete for the length of the transition.

Two cross sections immediately u/s of FW were modified in the HEC-RAS model to represent the inlet transition, namely XS 56.708 and 56.707 (in YOL/R1 reach). A typical cross section of the inlet transition is shown in Figure 16.

5.3.3 Modifications to the cross sections downstream of FW to represent outlet channel

Outlet channel geometric design is based on USACE Hydraulic Design of Flood Control Channels EM 1110-2-1601. For Alternatives # 6, the outlet channel consists of a trapezoidal design with channel bottom of 200' wide. The side slopes from channel bottom to the channel bench and to adjacent grade daylight are 3(H):1(V).

The outlet channel spans from the FW to the Tule Pond. Accordingly, five cross sections were modified in the existing condition HEC-RAS geometry, namely XS 56.649, 56.507, 56.311, 56.124 and 55.938, and two new cross sections were added to the existing condition HEC-RAS geometry, namely XS 56.090 and 56.030 (all in YOL/R1 reach). A typical cross section of the outlet channel is shown in Figure 17.

5.3.4 Modifications to the agricultural crossings

Agricultural crossing 1: Left unchanged from existing condition and modeled as a cross section (YOL/R1/55.092)

Agricultural crossing 2: Modified per design as shown in **Figure 11**. Agricultural crossing 2 has been represented in the HEC-RAS model as cross section (YOL/R1/54.623) with 144 feet width (equivalent to 6 box culverts, each with 24 feet span). The invert is at 14 feet elevation. A HEC-RAS schematic of agricultural crossing # 2 has been provided in **Figure 12**.

Agricultural crossing 3: Removed.

Agricultural crossing 4: Left unchanged from existing condition. Agricultural crossing # 4 has been represented in the HEC-RAS as a cross-section (YOL/R1/43.676) with cross-sectional flow area obstruction to the elevation of 14. A HEC-RAS schematic of agricultural crossing # 4 has been provided in **Figure 13**.

6 Results

As mentioned in the previous sections, the HIA was performed using the HEC-RAS hydraulic model for Alternative 1, Alternative 5 and Alternative 6 and for Alternative 4 TUFLOW hydraulic model was used.

Comparisons of flow hydrographs of the existing and Alternative 1, Alternative 5 and Alternative 6 conditions at key locations along the Sacramento River and Yolo Bypass are shown in Figure 18 to Figure 27 and for Alternative 4 are shown in Figure 28 through Figure 37.

The key locations included along Sacramento River are:

- upstream of the Fremont Weir,
- Verona Gage,
- I-Street Bridge,
- Freeport Bridge,
- Walnut Grove Gage, and
- Rio Vista Gage.

The key locations included along Yolo Bypass are:

- Yolo Bypass at I-5,
- Yolo Bypass at I-80,
- Yolo Bypass in Lisbon Gage, and
- Yolo Bypass at Holland Tract.

The comparisons of peak flows and water surface elevations between the existing and Alternative 1, Alternative 5 and Alternative 6 at key locations along the Sacramento River and the Yolo Bypass are

presented in **Table 2** and **Table 3** respectively. And the comparisons of peak flows and water surface elevations between the existing and Alternative 4 at key locations along the Sacramento River and the Yolo Bypass are presented in **Table 4** and **Table 5**.

With Project Alternatives in place, additional water is drawn into the Yolo Bypass. This is expected because of the presence of head water structure. The water surface profiles for existing and all project alternatives were presented in Figure 38 through Figure 43. The inundation impacts due to more flow into Yolo Bypass for different alternatives were discussed below.

Alternative 1 results indicated a maximum of 0.05 percent (see **Table 2**) increase in peak flow in the Yolo Bypass. But, the maximum WSE profiles comparison indicated a maximum increase of 0.03 feet near Knights Landing Ridge Cut (see **Table 3**) in Yolo Bypass. Alternative 1 slightly lowers the maximum WSE in Sacramento River. This is directly correlated with the minor reduction in peak flows in the Sacramento River as shown in **Table 2**. Hence, the Alternative 1 has negligible hydraulic impact on conveying peak flood flows in Yolo Bypass. Similar results are expected for Alternative 2 and 3.

Alternative 4 indicated a slight reduction (<0.75%) in peak flows in Sacramento River. This is expected as more flows are being diverted into the Yolo Bypass under Alternative 4 condition. A slight reduction (<0.5%) in peak flows is also observed in the Yolo Bypass, which may be related to the efficiencies gained with the improved channel and agricultural crossings under Alternative 4 condition. Except for few local hydraulic impacts, the maximum water surface elevation (WSE) is mostly found to be slightly lower (between 0.02 to 0.05 feet) within the Yolo Bypass with Alternative 4 in place. This is consistent with the minor reduction in peak flows, as discussed above. Based on Figure 43 and **Table 4 Table 5**, Alternative 4 has a negligible hydraulic impact on conveying peak flood flows.

Alternative 5 results indicated a maximum of 0.1 percent (see **Table 2**) increase in peak flow in the Yolo Bypass. But, the maximum WSE profiles comparison indicated a maximum increase of 0.01 feet (see **Table 3**) in Yolo Bypass. Alternative 5 slightly lowers the maximum WSE in Sacramento River. This is directly correlated with the minor reduction in peak flows in the Sacramento River as shown in **Table 2**. Hence, the Alternative 5 has negligible hydraulic impact on conveying peak flood flows in Yolo Bypass.

Alternative 5 results indicated a maximum of 0.1 percent (see **Table 2**) increase in peak flow in the Yolo Bypass. But, the maximum WSE profiles comparison indicated a maximum increase of 0.01 feet (see **Table 3**) in Yolo Bypass. Alternative 5 slightly lowers the maximum WSE in Sacramento River. This is directly correlated with the minor reduction in peak flows in the Sacramento River as shown in **Table 2**. Hence, the Alternative 5 has negligible hydraulic impact on conveying peak flood flows in Yolo Bypass.

Alternative 6 results indicated a maximum of 0.2 percent (see **Table 2**) increase in peak flow in the Yolo Bypass. But, the maximum WSE profiles comparison indicated a maximum increase of 0.02 feet (see **Table 3**) in Yolo Bypass. Alternative 5 slightly lowers the maximum WSE in Sacramento River. This is directly correlated with the minor reduction in peak flows in the Sacramento River as shown in **Table 2**. Hence, the Alternative 6 has negligible hydraulic impact on conveying peak flood flows in Yolo Bypass.

Additional analyses were done to evaluate WSE change at Fremont Weir for water years 1999 and 2000 for all Project Alternatives. WSE values were extracted from the TUFLOW model during the peak flow of the hydrograph. The overtopping events for these years are more representative of a frequent flood event (such-as the 2-year flood event). The peak flow for water years 1999 and 2000 are approximately 52,000 cfs and 82,000cfs respectively. The peak stage for water years 1999 and 2000 are elevation 34.4 (NAVD88) and elevation 35.1 (NAVD88) respectively. WSE changes are presented in **Table 6**.

7 Conclusion

With Project Alternatives in place, additional water is drawn into the Yolo Bypass to provide a better fish passage. The maximum increase and decrease in Flows and WSEs due to Project Alternatives in place were included in **Table 7** under peak event flow scenarios. It is concluded that none of Alternatives will create any hydraulic impact due to the project in place. Additionally, increases to WSE due to the more frequent flood event are negligible and therefore WSE impacts, such-as wind wave erosion, would be less than significant.

Table 2 : Peak flow comparison between existing and Alternative 1, Alternative 5 and Alternative 6 Conditions

Locations along the Sacramento River	Peak Flow (cfs)				Difference (Alternative 1 minus Existing) (cfs)	Difference (Alternative 5 minus Existing) (cfs)	Difference (Alternative 6 minus Existing) (cfs)	Percentage Increase or Decrease in flow ¹ (%)		
	Existing Condition	Alternative 1 Condition	Alternative 5 Condition	Alternative 6 Condition				Alternative 1 Condition	Alternative 5 Condition	Alternative 6 Condition
Key Locations along Sacramento River										
Upstream of Fremont Weir	32,001	32,003	32,015	32,003	2	14	1	0.01	0.04	0.00
Natomas Cross Canal	99,171	98,979	98,695	98,376	-191.54	-475.45	-795	-0.19	-0.48	-0.80
Verona gage	99,681	99,491	99,211	98,892	-190.66	-470.28	-789.64	-0.19	-0.47	-0.79
Interstate 5	99,594	99,402	99,121	98,802	-191.23	-473	-791.8	-0.19	-0.47	-0.80
Upstream of Sacramento Weir	99,488	99,297	99,015	98,696	-191.44	-473.56	-792.69	-0.19	-0.48	-0.80
Interstate 80	53,435	52,671	53,059	52,318	-763.78	-376.38	-1117.09	-1.43	-0.70	-2.09
Byte gage	53,444	52,678	53,067	52,324	-766.16	-376.87	-1119.77	-1.43	-0.71	-2.10
American River	112,450	112,404	112,325	112,263	-46.7	-125.8	-187.4	-0.04	-0.11	-0.17
I Street Bridge	112,416	112,369	112,290	112,229	-46.9	-126.4	-187.8	-0.04	-0.11	-0.17
Pioneer Memorial Bridge	112,390	112,343	112,265	112,202	-46.7	-124.8	-187.5	-0.04	-0.11	-0.17
Freeport bridge	112,117	112,070	111,991	111,928	-47.4	-126.4	-189.4	-0.04	-0.11	-0.17
Snodgrass Slough	112,020	111,972	111,895	111,829	-47.2	-124.1	-190.2	-0.04	-0.11	-0.17
Sutter Slough	112,013	111,965	111,888	111,822	-47.4	-124.5	-190.3	-0.04	-0.11	-0.17
Steamboat Slough	91,166	91,130	91,072	91,022	-35.67	-94.43	-144.15	-0.04	-0.10	-0.16
Walnut Grove gage	65,919	65,895	65,854	65,820	-24.18	-64.57	-98.67	-0.04	-0.10	-0.15
Cache Slough	552,610	552,594	552,558	552,565	-15.9	-51.6	-44.5	0.00	-0.01	-0.01
Rio Vista	553,002	552,986	552,950	552,957	-16.1	-52.6	-44.9	0.00	-0.01	-0.01
3 Mile Slough	553,560	553,544	553,507	553,515	-15.9	-53.1	-44.9	0.00	-0.01	-0.01
Collinsville gage	496,635	496,634	496,655	496,624	-1.2	19.1	-11.6	0.00	0.00	0.00
Key Locations along Yolo Bypass										
Fremont Weir	353,586	353,765	353,988	354,336	180	402	751	0.05	0.11	0.21
Agricultural crossing 1	353,479	353,658	353,876	354,238	178	397	759	0.05	0.11	0.21
Agricultural crossing 2	353,443	353,622	353,840	354,202	180	397	759	0.05	0.11	0.21
Knights Landing Ridge Cut	353,461	353,634	353,847	354,187	173	386	726	0.05	0.11	0.21
Interstate 5	362,567	362,735	362,931	363,273	168	364	706	0.05	0.10	0.19
Road 25 at West Levee	362,362	362,531	362,732	363,076	169	370	714	0.05	0.10	0.20
Sacramento Bypass	361,476	361,646	361,853	362,193	170	377	717	0.05	0.10	0.20
Agricultural crossing 4	464,986	465,007	464,995	465,090	21	9	104	0.00	0.00	0.02
Interstate 80	464,713	464,734	464,727	464,819	21	15	106	0.00	0.00	0.02
Putah Creek	463,802	463,823	463,816	463,906	21	14	104	0.00	0.00	0.02
Lisbon Gage	462,521	462,541	462,541	462,626	20	20	105	0.00	0.00	0.02
North end of Holland Tract	460,399	460,416	460,414	460,499	17	15	100	0.00	0.00	0.02
South end of Holland Tract	459,599	459,614	459,603	459,689	15	4	90	0.00	0.00	0.02
DWSC at Miner Slough	318,669	318,682	318,701	318,723	13	31	54	0.00	0.01	0.02

Notes:

1- Negative percentage means flow is decreasing compared to existing condition and positive percentage means flow is increasing compared to existing condition

Table 3 : Maximum WSE comparison between existing and Alternative 1, Alternative 5 and Alternative 6 Conditions

Locations along the Sacramento River	Maximum WSE (ft. NAVD88)				Difference (Alternative 1 minus Existing) (ft)	Difference (Alternative 5 minus Existing) (ft)	Difference (Alternative 6 minus Existing) (ft)
	Existing Condition	Alternative 1 Condition	Alternative 5 Condition	Alternative 6 Condition			
Key Locations along Sacramento River							
Upstream of Fremont Weir	41.02	40.98	40.92	40.86	0.0	-0.1	-0.2
Natomas Cross Canal	41.24	41.21	41.17	41.13	0.0	-0.1	-0.1
Verona gage	39.60	39.38	39.54	39.50	-0.2	-0.1	-0.1
Interstate 5	37.27	37.30	37.27	37.20	0.0	0.0	-0.1
Upstream of Sacramento Weir	33.55	33.54	33.53	33.52	0.0	0.0	0.0
Interstate 80	34.37	34.36	34.35	34.34	0.0	0.0	0.0
Bryte gage	34.38	34.37	34.35	34.34	0.0	0.0	0.0
American River	34.36	34.35	34.34	34.34	0.0	0.0	0.0
I Street Bridge	33.67	33.68	33.65	33.64	0.0	0.0	0.0
Pioneer Memorial Bridge	32.56	32.56	32.55	32.53	0.0	0.0	0.0
Freeport bridge	27.72	27.71	27.70	27.69	0.0	0.0	0.0
Snodgrass Slough	22.28	22.21	22.20	22.19	-0.1	-0.1	-0.1
Sutter Slough	19.85	19.84	19.83	19.83	0.0	0.0	0.0
Steamboat Slough	20.54	20.49	20.48	20.52	0.0	-0.1	0.0
Walnut Grove gage	17.12	17.12	17.11	17.11	0.0	0.0	0.0
Cache Slough	11.83	11.83	11.83	11.83	0.0	0.0	0.0
Rio Vista	11.54	11.54	11.54	11.54	0.0	0.0	0.0
3 Mile Slough	5.49	5.49	5.49	5.49	0.0	0.0	0.0
Collinsville gage	8.30	8.30	8.30	8.30	0.0	0.0	0.0
Key Locations along Yolo Bypass							
Fremont Weir	40.2	40.2	40.1	40.0	-0.01	-0.11	-0.13
Agricultural crossing 1	37.3	37.3	37.3	37.3	0.00	0.01	0.02
Agricultural crossing 2	37.0	37.0	37.0	37.0	0.01	0.01	0.02
Knights Landing Ridge Cut	36.4	36.4	36.4	36.4	0.03	0.01	0.02
Interstate 5	33.5	33.5	33.5	33.5	0.00	0.00	0.01
Road 25 at West Levee	32.0	32.0	32.0	32.0	0.00	0.00	0.01
Sacramento Bypass	29.9	29.9	29.9	29.9	0.00	0.00	0.00
Agricultural crossing 4	29.8	29.8	29.8	29.8	0.01	0.01	0.01
Interstate 80	29.1	29.1	29.1	29.1	0.00	0.00	0.00
Putah Creek	27.5	27.5	27.5	27.5	0.00	0.00	0.00
Lisbon Gage	25.5	25.5	25.5	25.5	0.00	0.00	0.00
North end of Holland Tract	21.3	21.3	21.3	21.3	0.00	0.00	0.01
South end of Holland Tract	18.6	18.6	18.6	18.6	0.00	0.00	0.00
DWSC at Miner Slough	15.6	15.6	15.6	15.6	0.00	0.00	0.00

Table 4 : Peak flow comparison between existing and Alternative 4 conditions

Locations along the Sacramento River	Peak Flow (cfs)		Difference (Alternative 4 - Existing) (cfs)	Percentage Increase or Decrease in flow ¹ (%)
	Existing Condition	Alternative 4 Condition		
Key Locations along Sacramento River				
Upstream of Fremont Weir	32,737	32,722	-15	-0.05
Natomas Cross Canal	87,864	87,232	-632	-0.72
Verona gage	96,766	96,209	-557	-0.58
Interstate 5	95,369	94,734	-635	-0.67
Upstream of Sacramento Weir	95,449	94,818	-631	-0.66
Interstate 80	64,904	64,664	-240	-0.37
Bryte gage	64,910	64,671	-239	-0.37
American River	64,924	64,684	-240	-0.37
I Street Bridge	108,905	108,826	-79	-0.07
Pioneer Memorial Bridge	108,560	108,480	-80	-0.07
Freeport bridge	106,852	106,695	-157	-0.15
Snodgrass Slough	106,714	106,561	-153	-0.14
Sutter Slough	106,677	106,529	-148	-0.14
Steamboat Slough	83,826	83,715	-111	-0.13
Walnut Grove gage	61,182	61,105	-77	-0.13
Cache Slough	476,087	474,692	-1395	-0.29
Key Locations along Yolo Bypass				
Fremont Weir	32,737	32,722	-15	-0.05
Knights Landing Ridge Cut	307,074	306,168	-906	-0.30
Interstate 5	320,051	319,229	-822	-0.26
Sacramento Bypass	373,761	372,378	-1383	-0.37
Interstate 80	416,550	415,687	-863	-0.21
Lisbon Gage	415,441	413,459	-1982	-0.48
Thomsen Road	410,952	409,755	-1197	-0.29
Delhi Road	407,061	405,746	-1315	-0.32

Notes:

1- Negative percentage means flow is decreased comparing to existing condition and positive percentage means flow is increased comparing to existing condition

Table 5 : Maximum WSE comparison between existing and Alternative 4 conditions

Locations along the Sacramento River	Maximum WSE (ft. NAVD88)		Difference (Alternative 4 - Existing) (ft)
	Existing Condition	Alternative 1 Condition	
Key Locations along Sacramento River			
Upstream of Fremont Weir	40.39	40.24	-0.15
Natomas Cross Canal	40.22	40.12	-0.1
Verona gage	39.93	39.83	-0.1
Interstate 5	36.11	36.04	-0.07
Upstream of Sacramento Weir	32.23	32.15	-0.08
Interstate 80	32.2	32.16	-0.04
Bryte gage	32.2	32.16	-0.04
American River	32.19	32.17	-0.02
I Street Bridge	31.89	31.86	-0.03
Pioneer Memorial Bridge	31.24	31.21	-0.03
Freeport bridge	26.13	26.1	-0.03
Snodgrass Slough	21.41	21.39	-0.02
Sutter Slough	20.2	20.18	-0.02
Steamboat Slough	18.95	18.93	-0.02
Walnut Grove gage	16.44	16.43	-0.01
Cache Slough	11.16	11.16	0
Key Locations along Yolo Bypass			
Fremont Weir	40.39	40.24	-0.15
Knights Landing Ridge Cut	35.33	35.32	-0.01
Interstate 5	31.04	31.02	-0.02
Sacramento Bypass	29.88	29.86	-0.02
Interstate 80	28.45	28.43	-0.02
Lisbon Gage	26.49	26.47	-0.02
Thomsen Road	25.3	25.28	-0.02
Delhi Road	22.23	22.21	-0.02

Table 6 : Water Surface elevation Impacts due to project alternatives for frequent flood events

Alternatives	WSE change from Existing Conditions (ft)	
	Water Year 1999	Water Year 2000
Alternative 1, 2, 3	-0.15	-0.14
Alternative 4	0.05	-0.08
Alternative 5	0.03	0.04
Alternative 6	-0.21	-0.26

Table 7 : Flow and Water Surface elevation Impacts due to project alternatives for peak flood events

Alternatives	Along Sacramento River		Along Yolo Bypass	
	Maximum Increase	Maximum Decrease	Maximum Increase	Maximum Decrease
Existing and Alternatives Flow Comparison in percentage				
Alternative 1	0.01	-1.43	0.05	0.00
Alternative 4	-0.05	-0.72	-0.05	-0.48
Alternative 5	0.04	-0.71	0.11	0.00
Alternative 6	0.00	-2.10	0.21	0.02
Existing and Alternatives WSE Comparison in feet				
Alternative 1	0.02	-0.22	0.03	-0.01
Alternative 4	0.00	-0.15	-0.01	-0.15
Alternative 5	0.00	-0.10	0.01	-0.11
Alternative 6	0.00	-0.16	0.02	-0.13

FIGURES

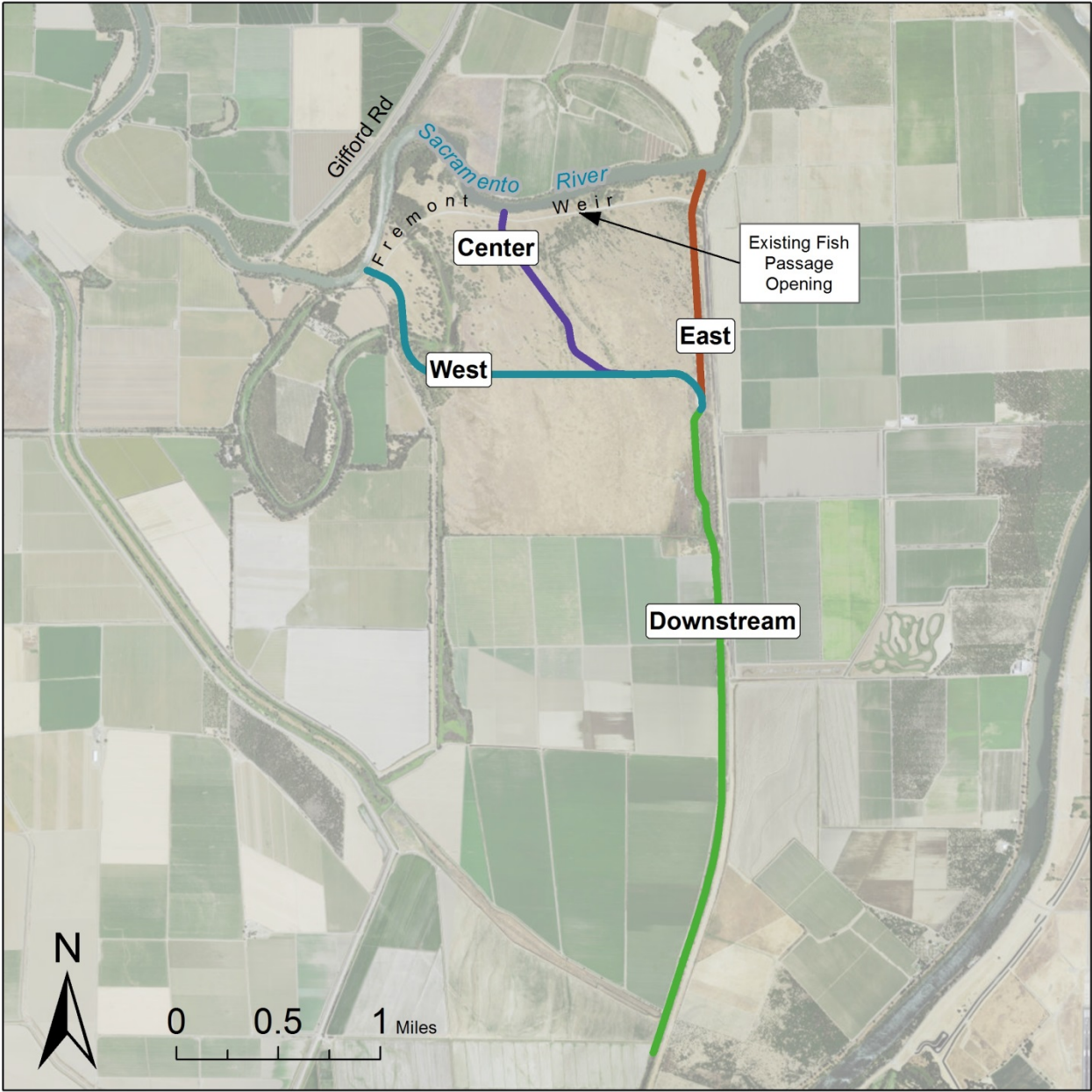


Figure 1. Alternative 1 and 6 Channel alternative alignments

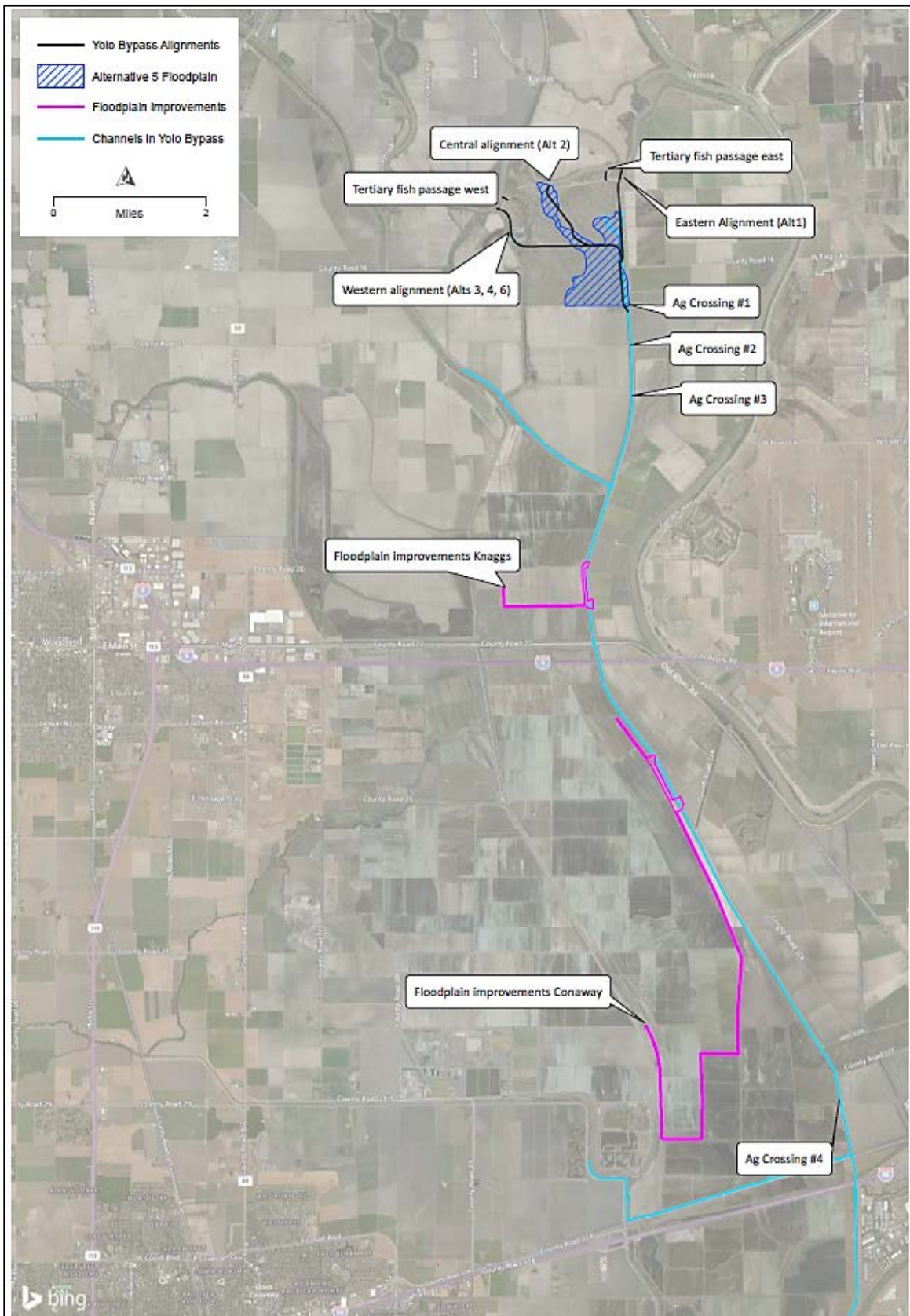


Figure 2. Alternative 4 Channel alternative alignments

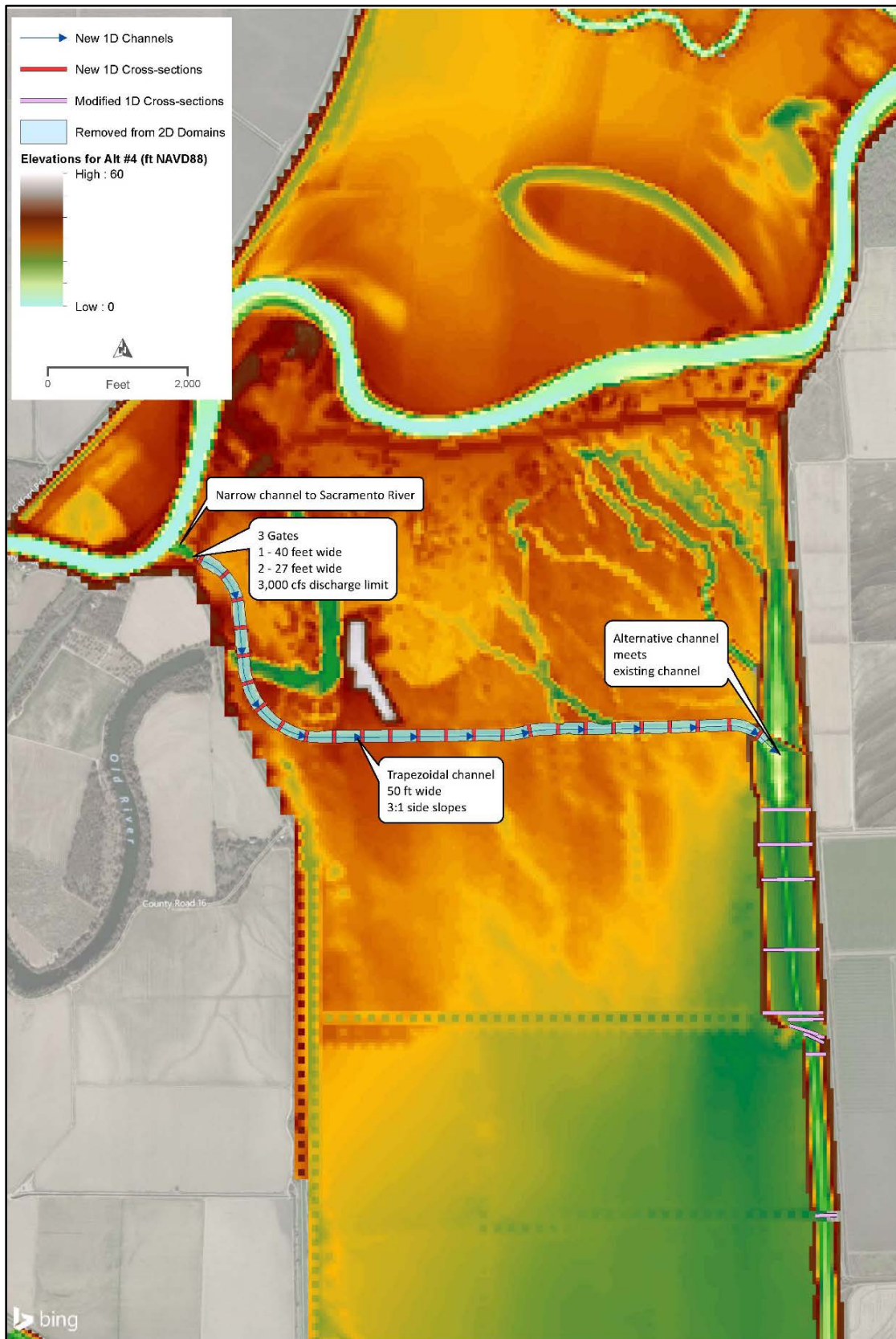


Figure 3. Alternative 4 model features

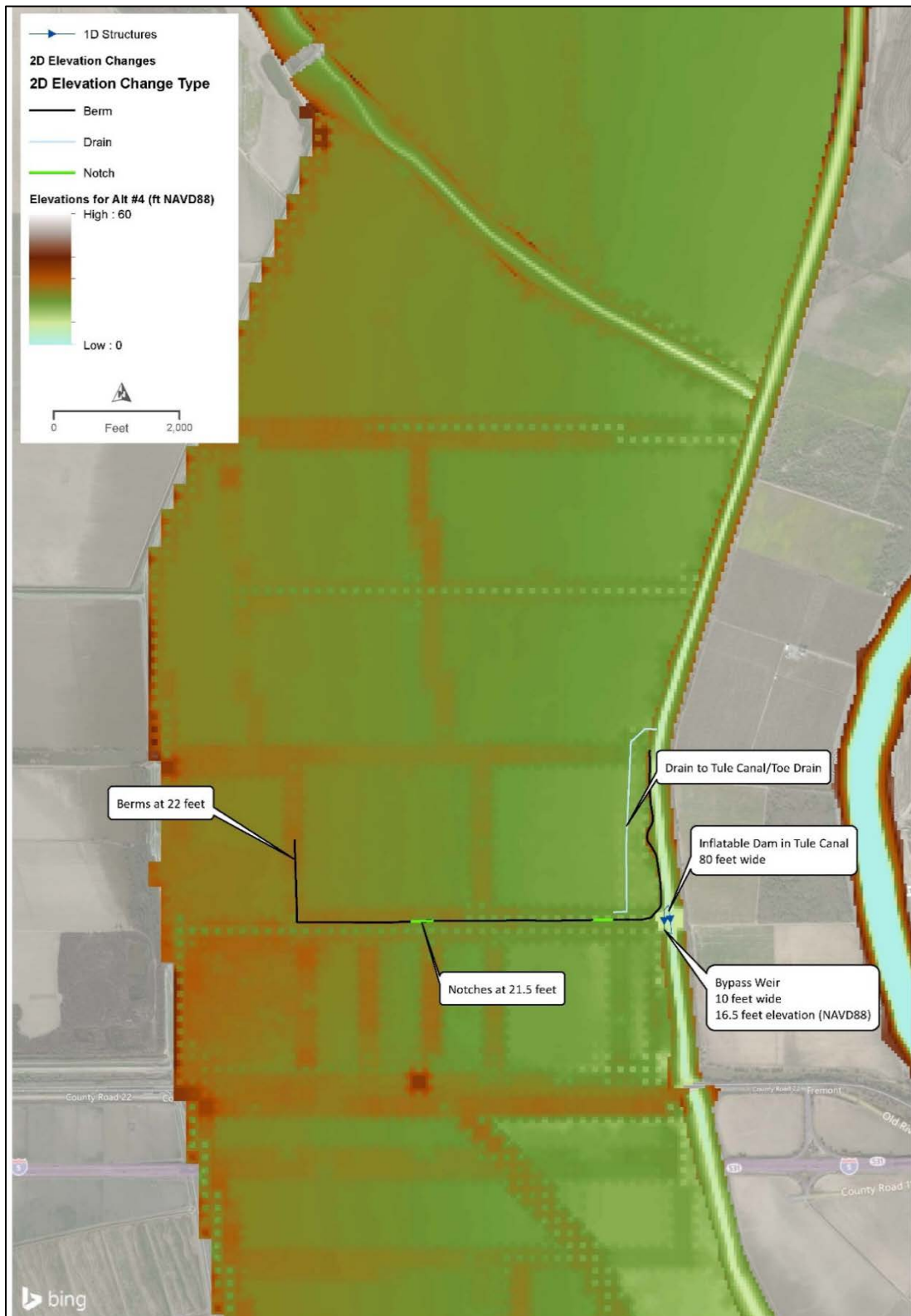


Figure 4. Alternative 4 floodplain improvements at Knaggs

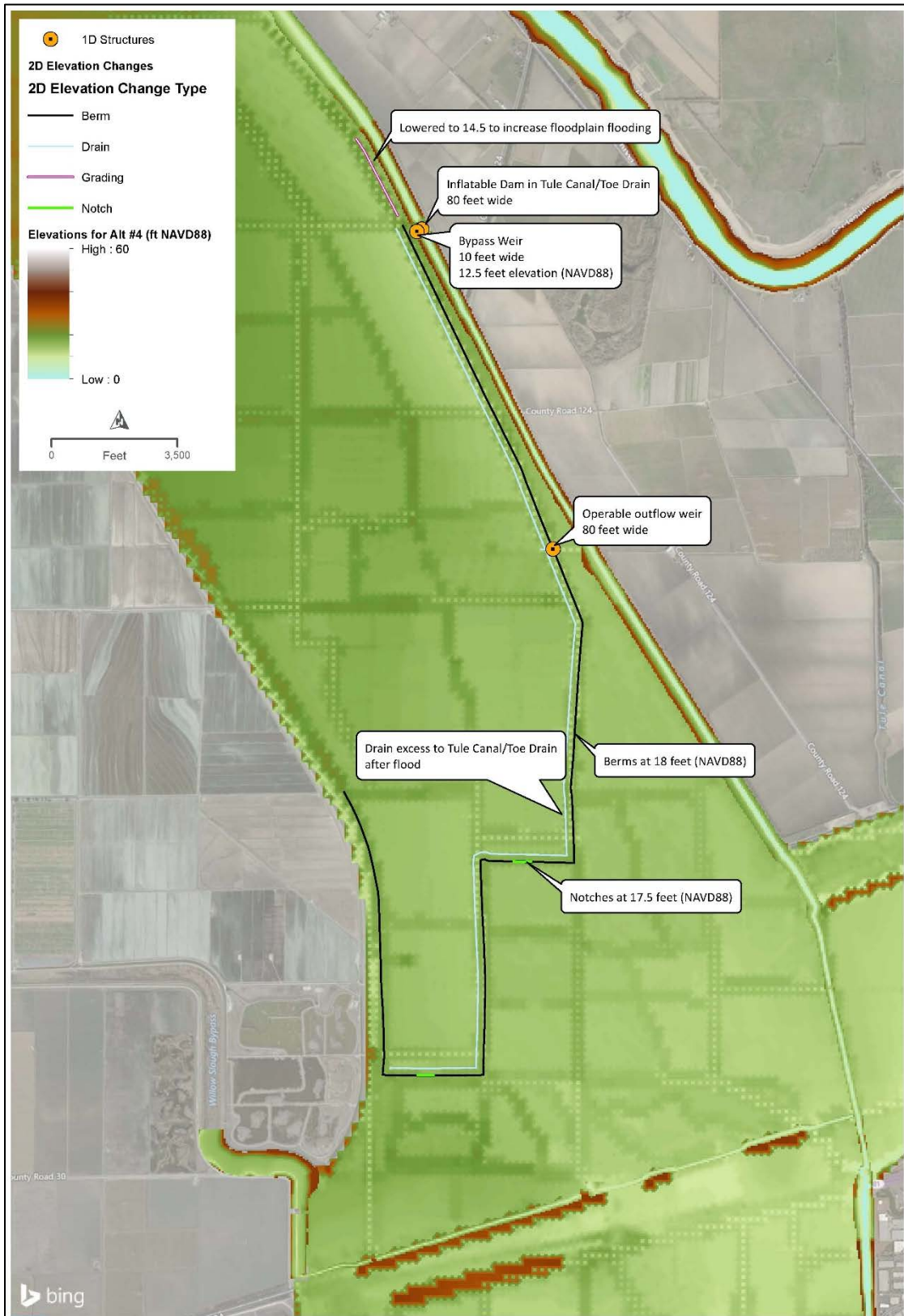


Figure 5. Alternative 4 floodplain improvements at Conaway

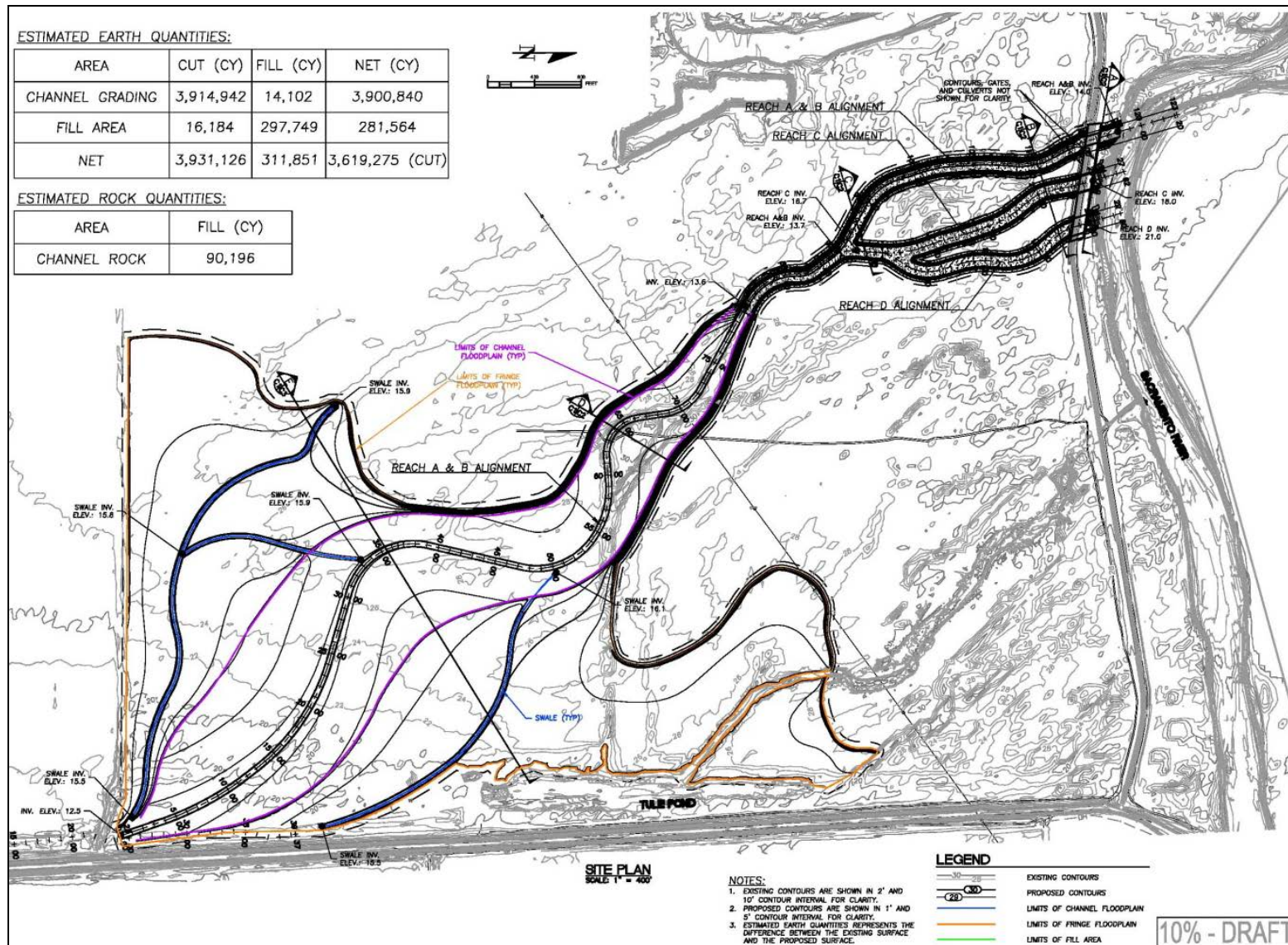


Figure 6. Alternative 5 Channel alternative alignments

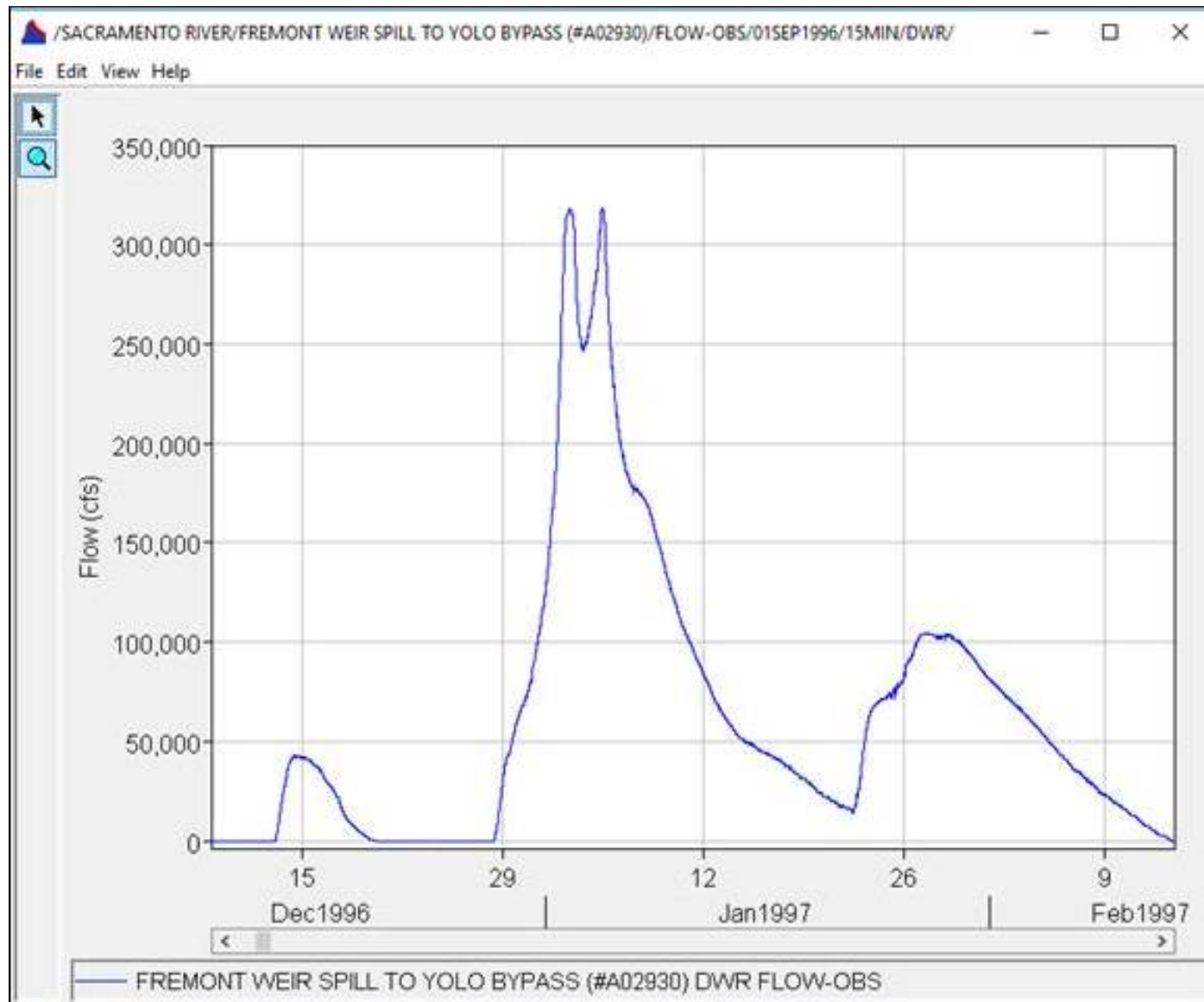


Figure 7. Alternative 4 Observed flow hydrograph of Fremont Weir spill into Yolo Bypass for 1997 event

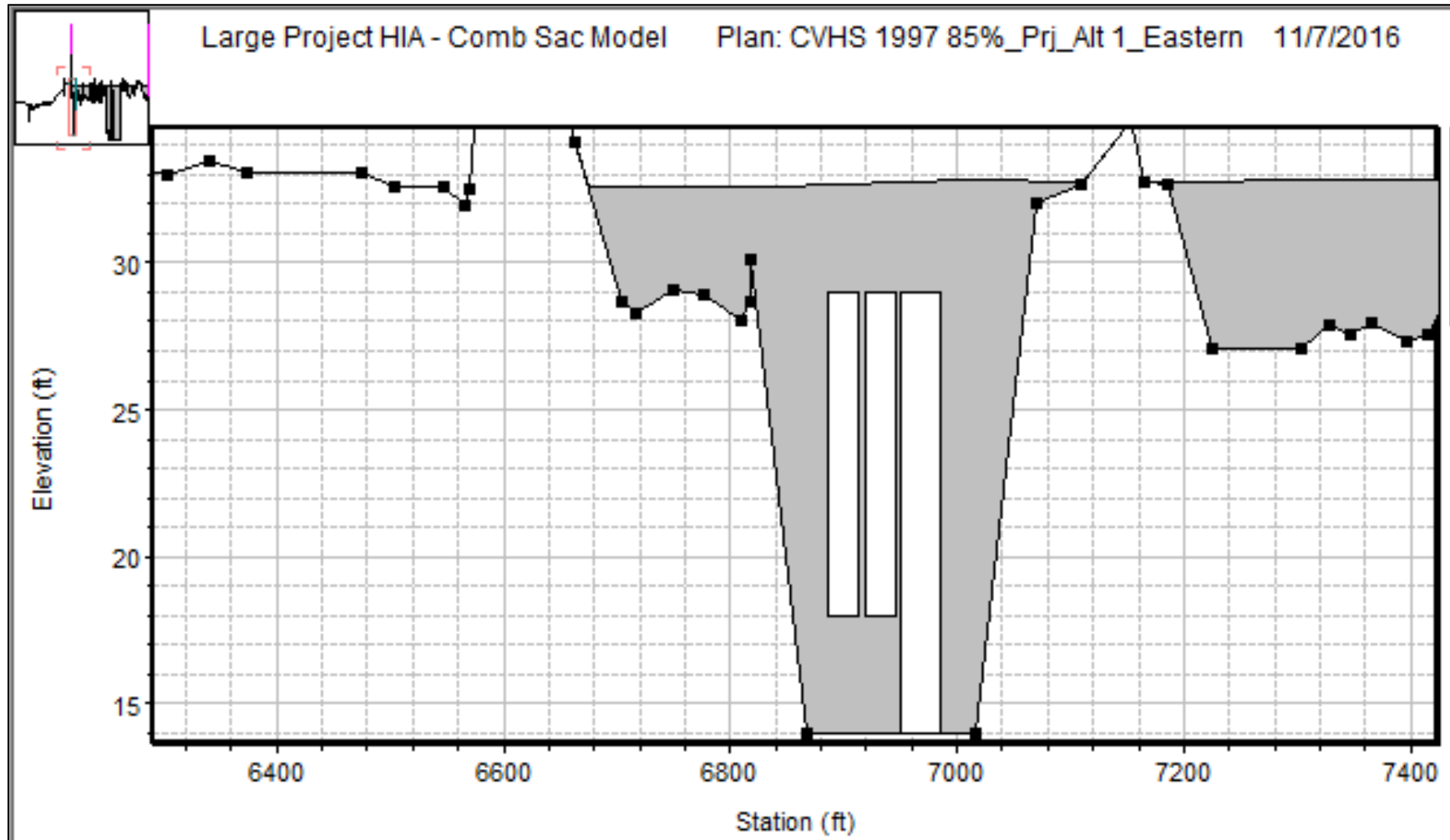


Figure 8. Alternative 1 HW structure as represented in the HEC-RAS model

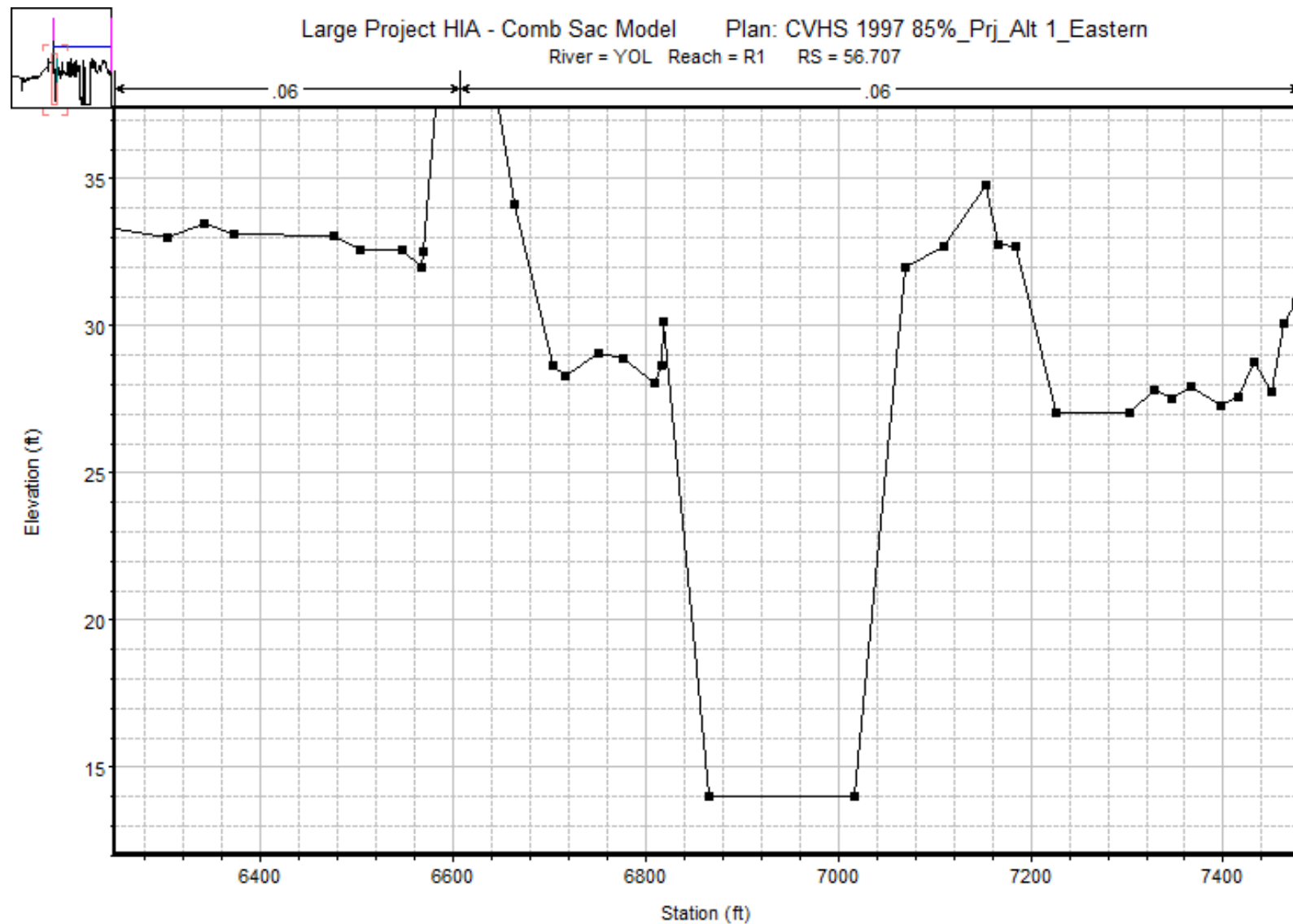


Figure 9. Alternative 1 Typical HEC-RAS cross section of the inlet transition

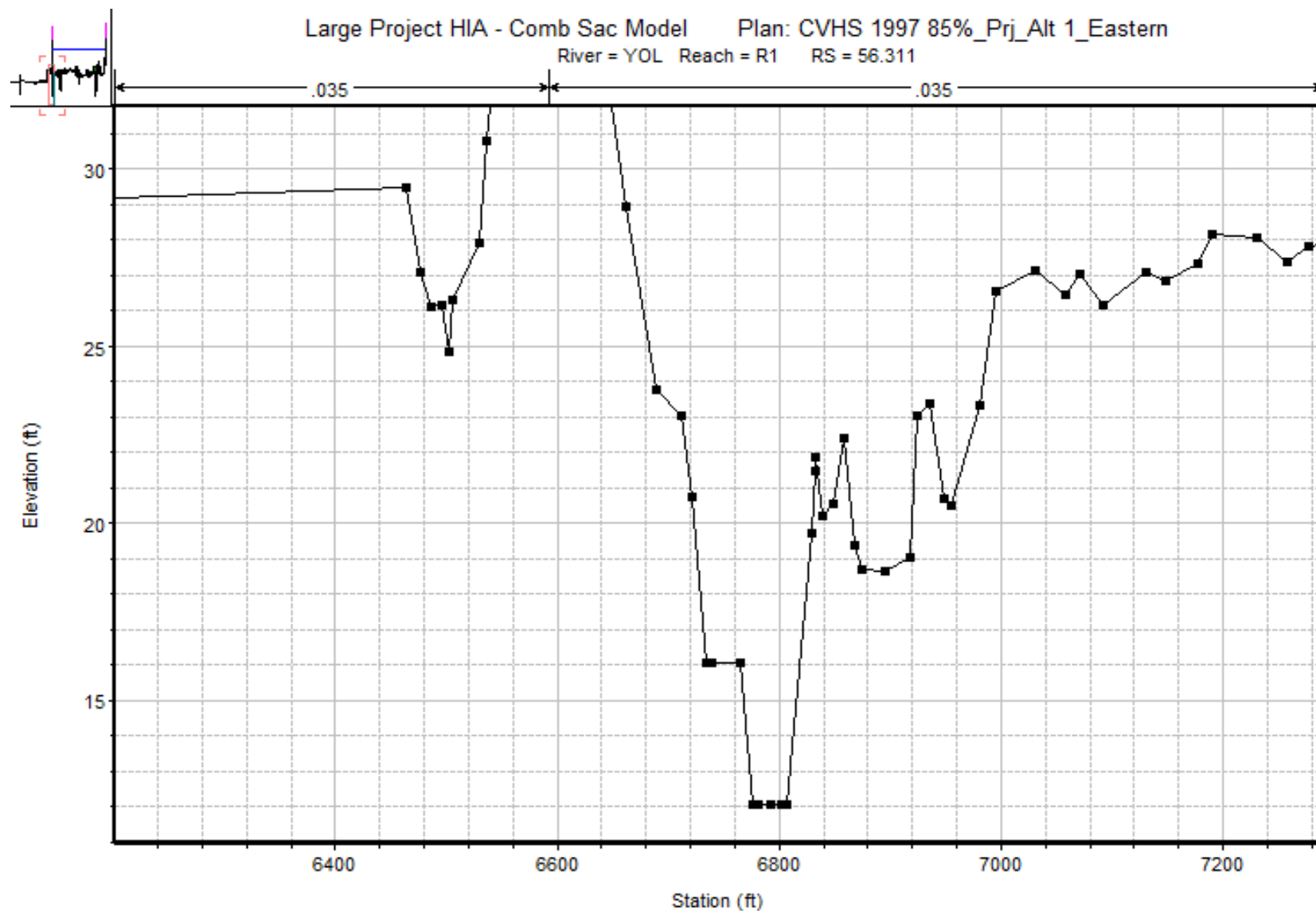
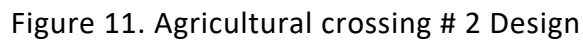


Figure 10. Typical HEC-RAS cross section of the outlet channel



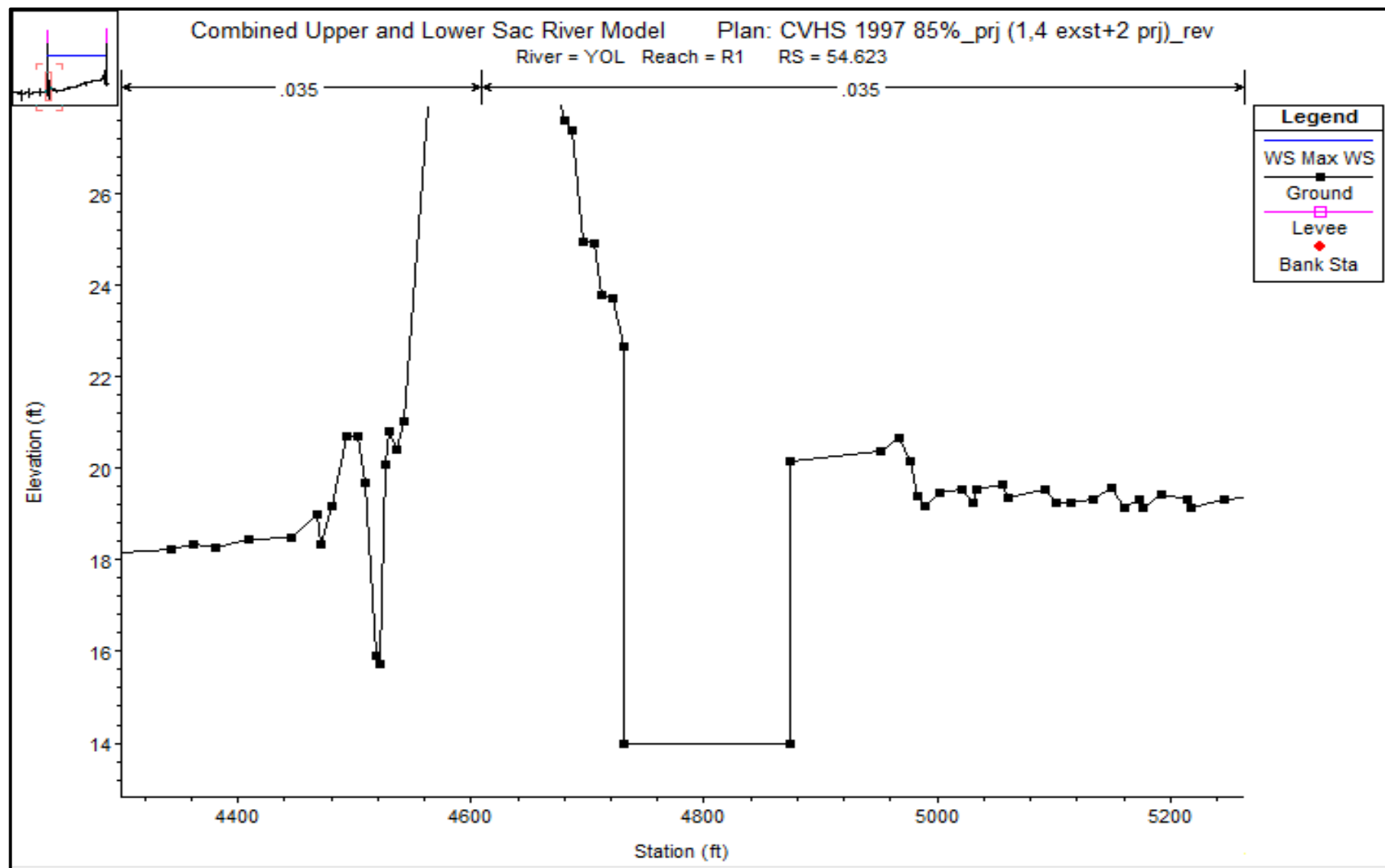


Figure 12. HEC-RAS schematic of agricultural crossing # 2

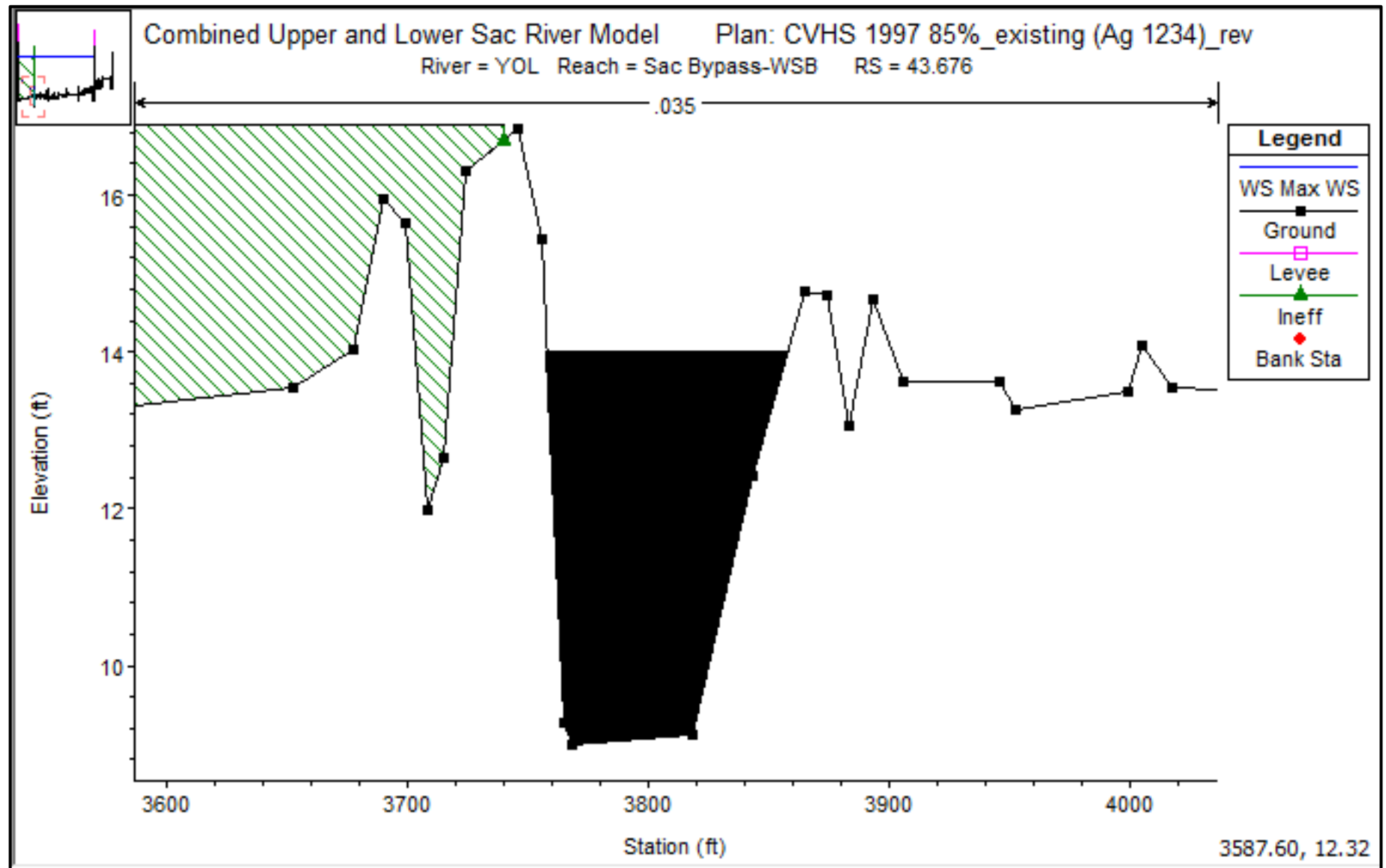


Figure 13. HEC-RAS schematic of agricultural crossing # 4

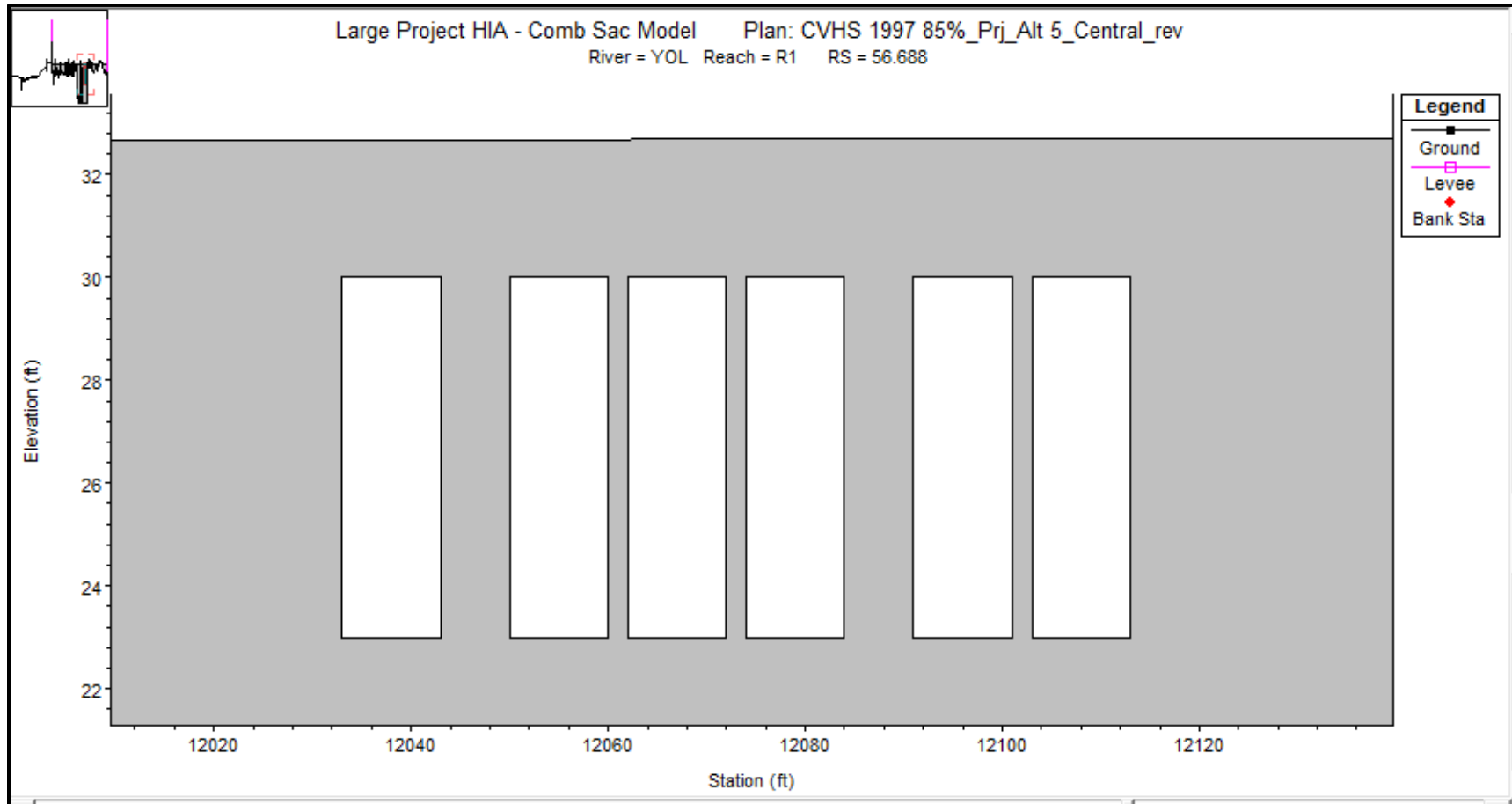


Figure 14. Alternative 5 headwork structure as represented in the HEC-RAS model

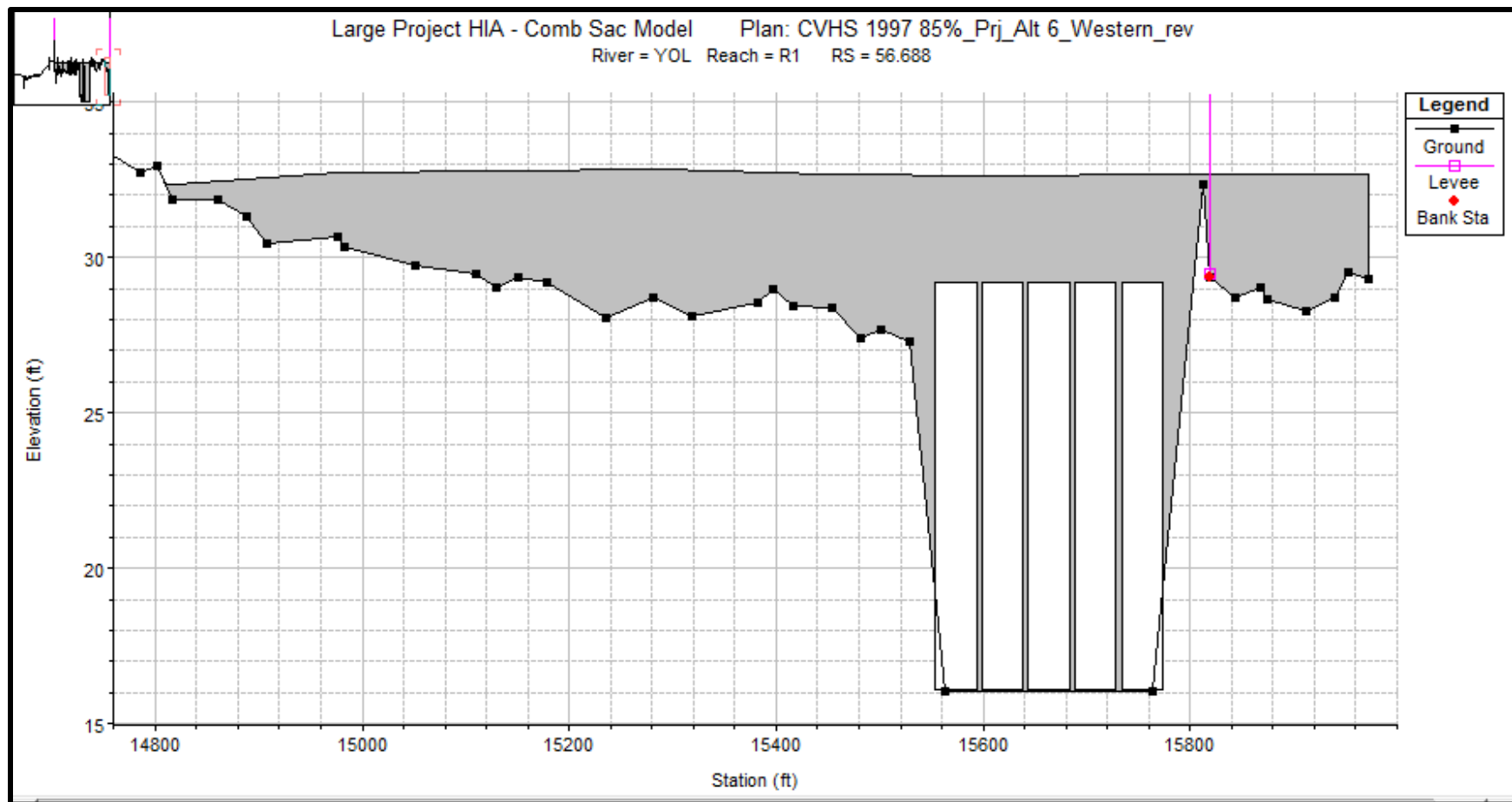


Figure 15. Alternative 6 headwork structure as represented in the HEC-RAS model

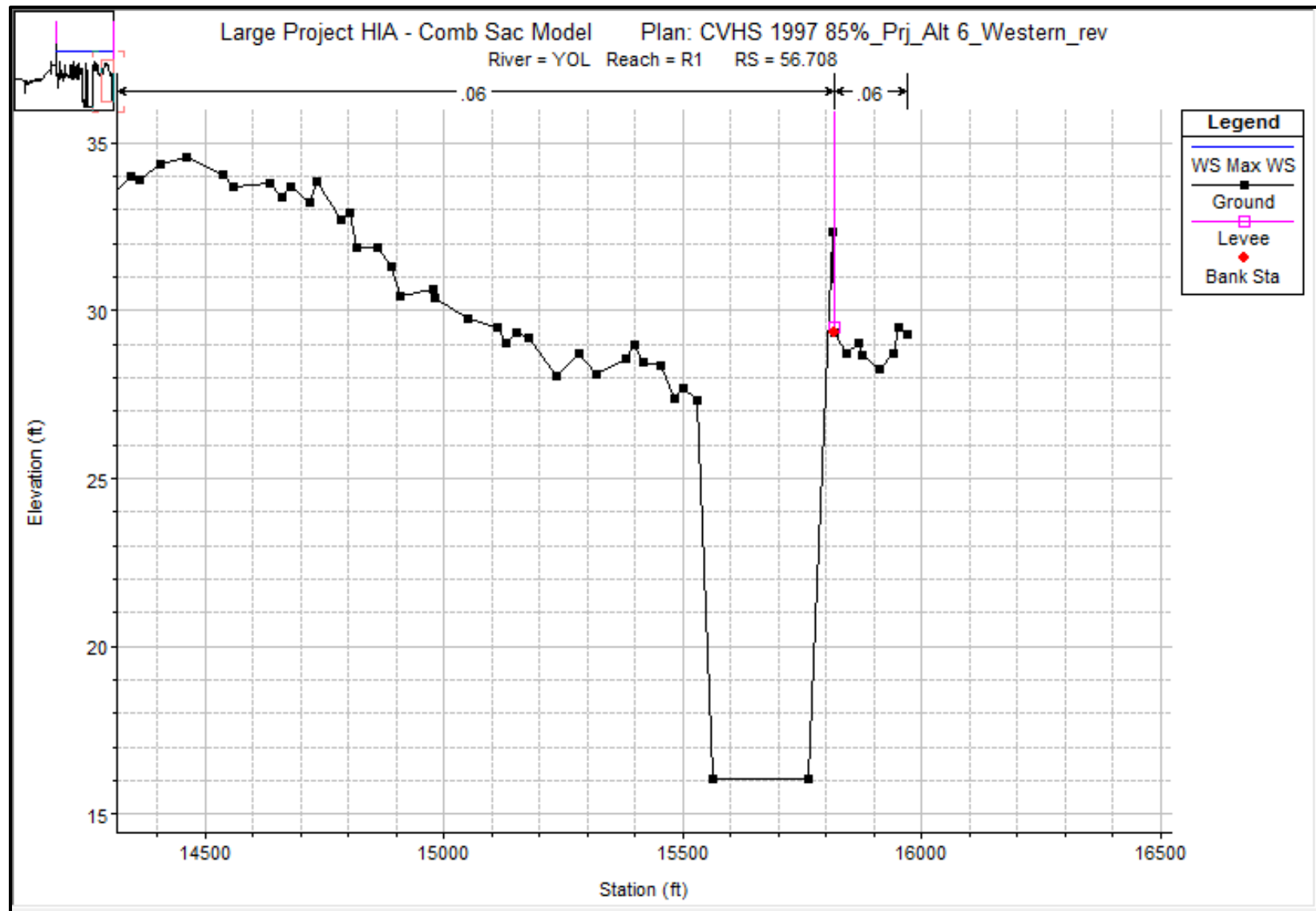


Figure 16. Alternative 6 Typical HEC-RAS cross section of the inlet transition

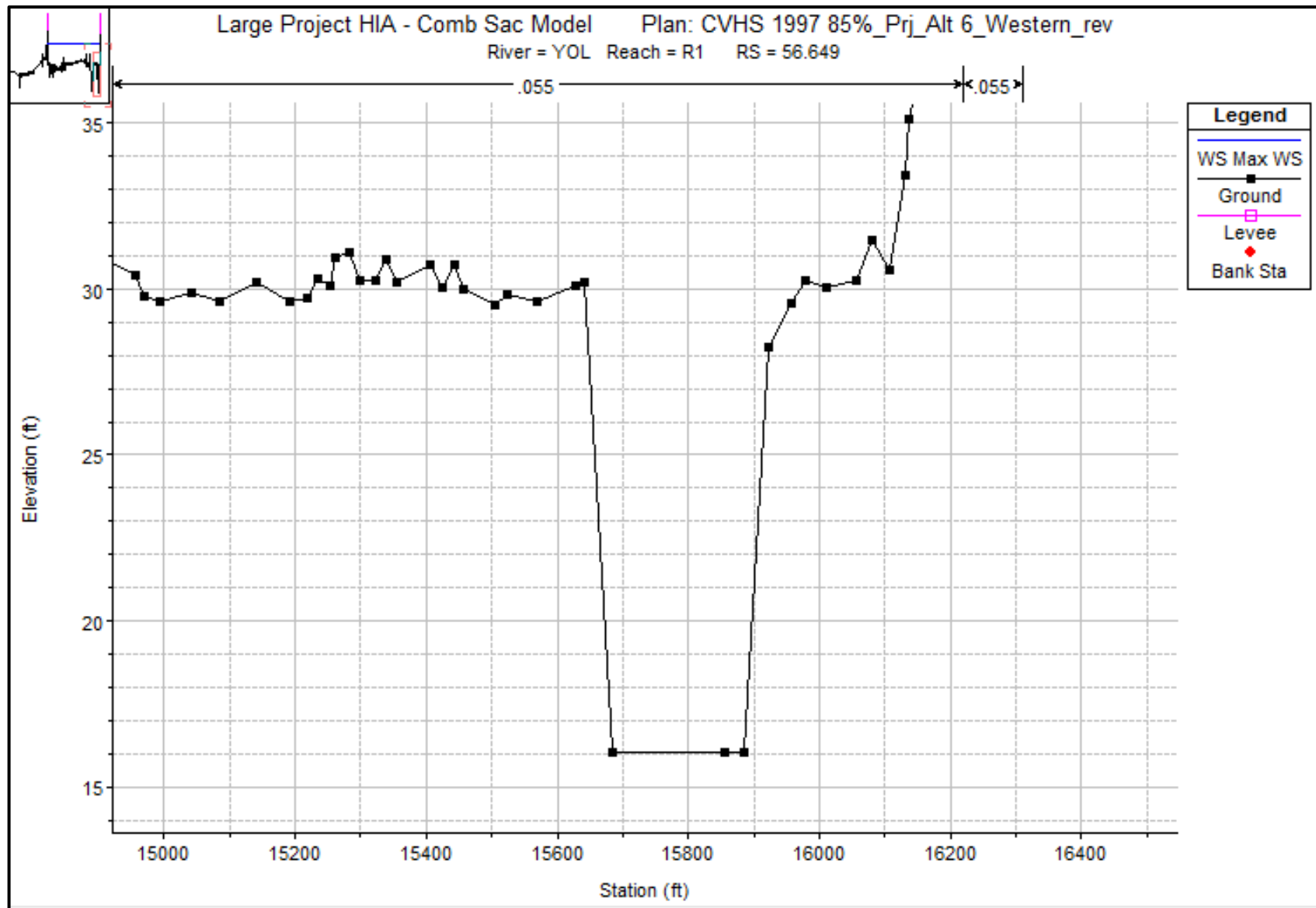


Figure 17. Alternative 6 Typical HEC-RAS cross section of the outlet channel

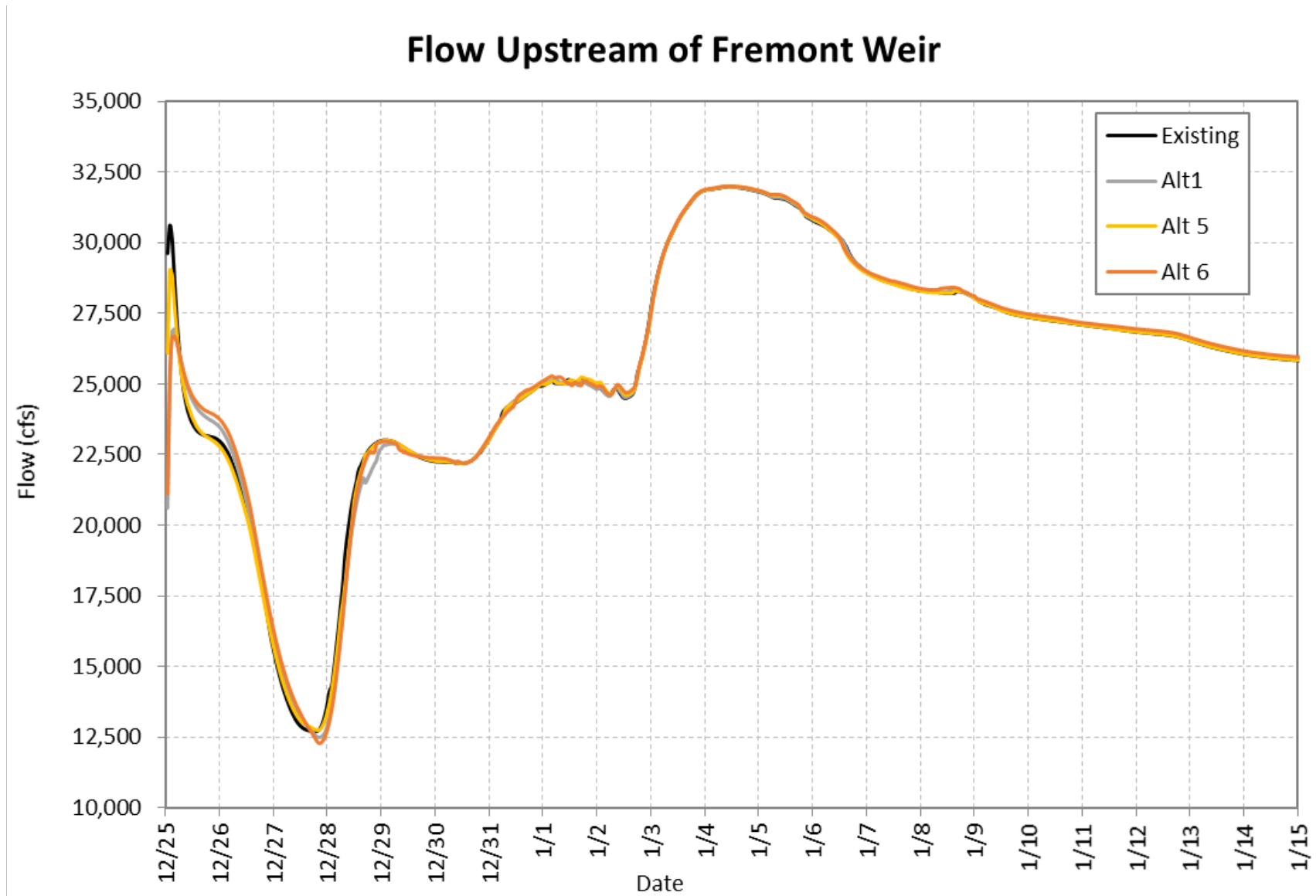


Figure 18. Flow Hydrographs for Existing, Alternative 1, 5 and 6 Along Sacramento River at upstream of Fremont Weir

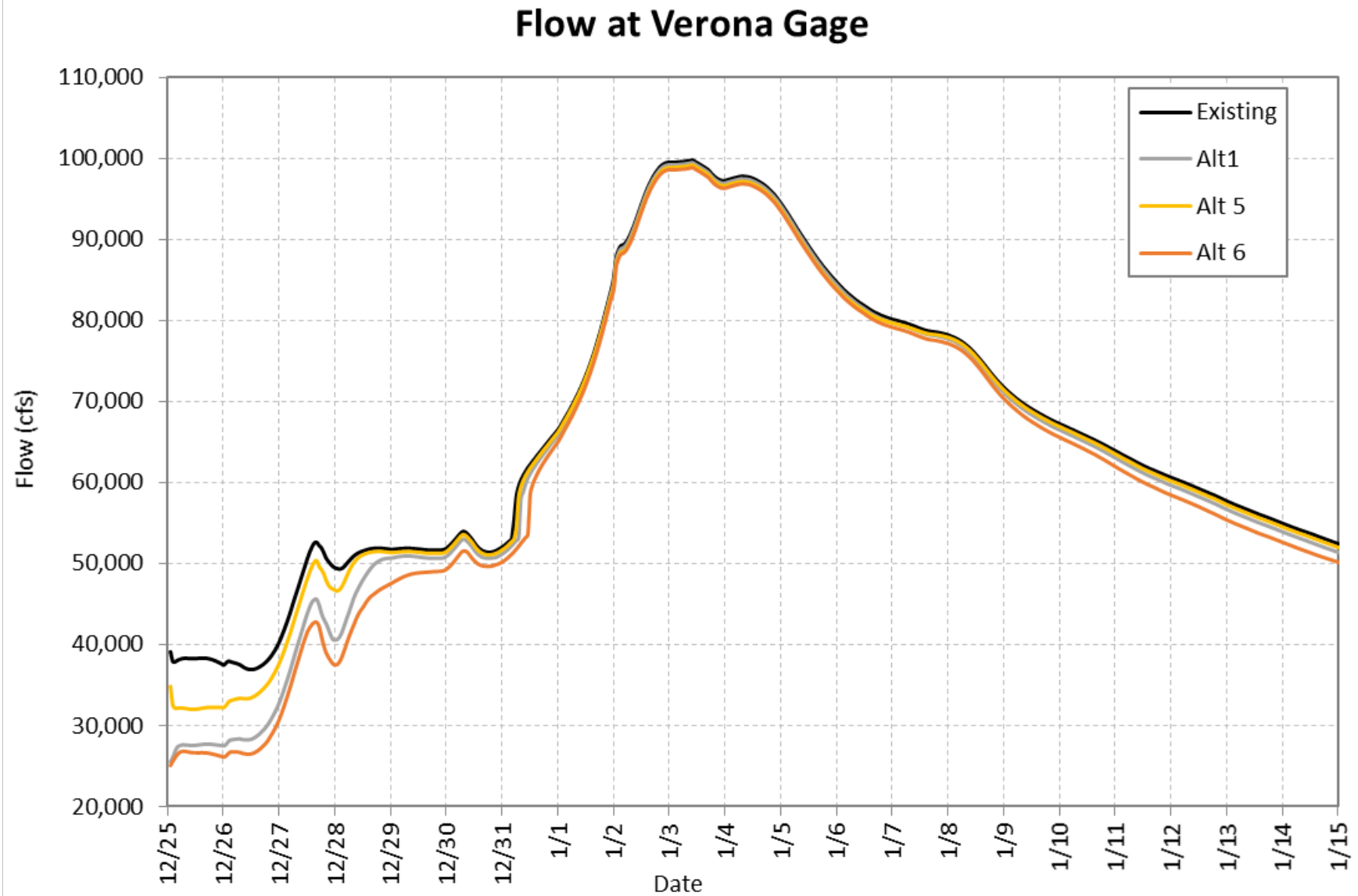


Figure 19. Flow Hydrographs for Existing, Alternative 1, 5 and 6 Along Sacramento River at Verona Gage

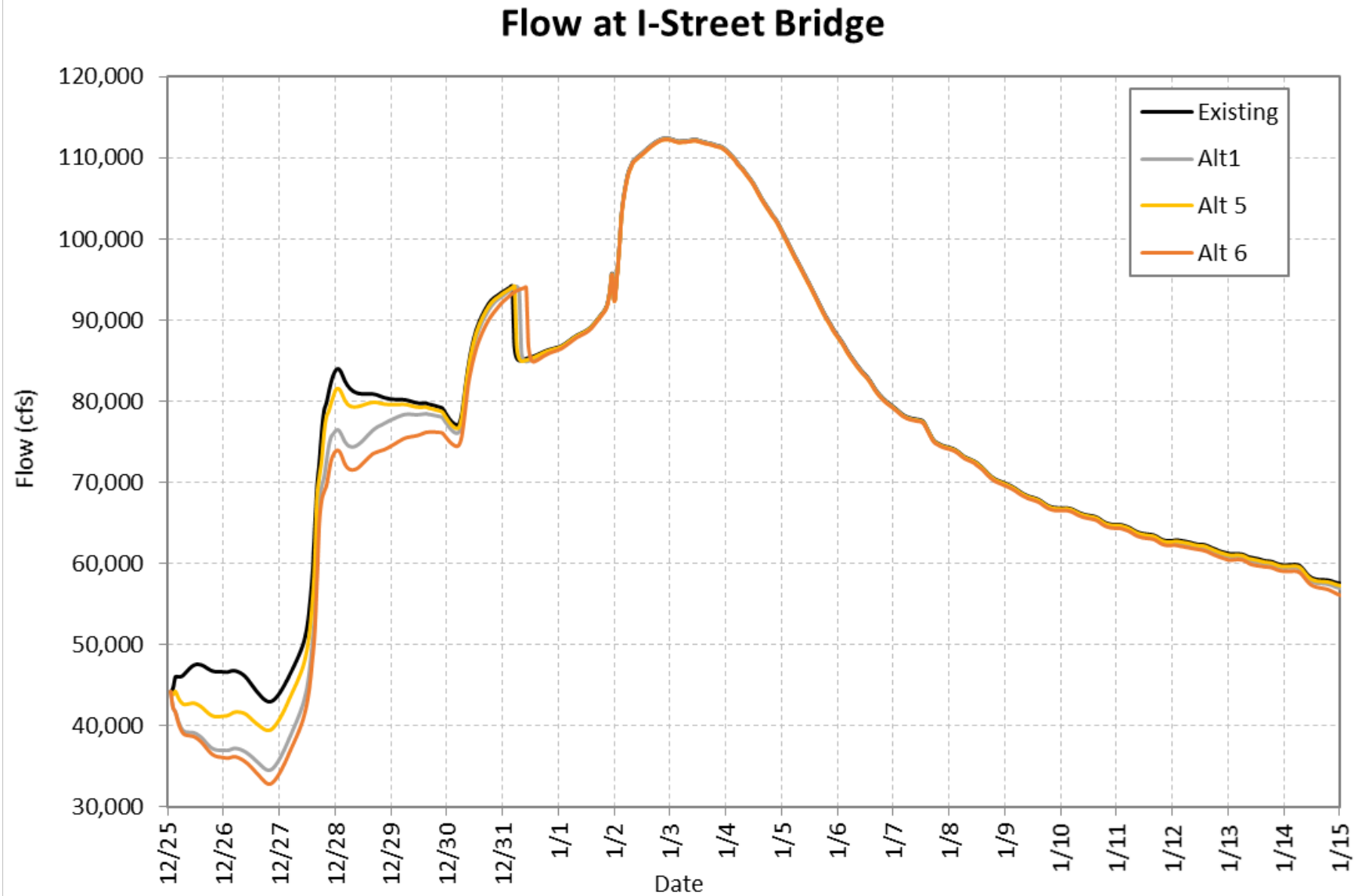


Figure 20. Flow Hydrographs for Existing, Alternative 1, 5 and 6 Along Sacramento River at I-Street Bridge

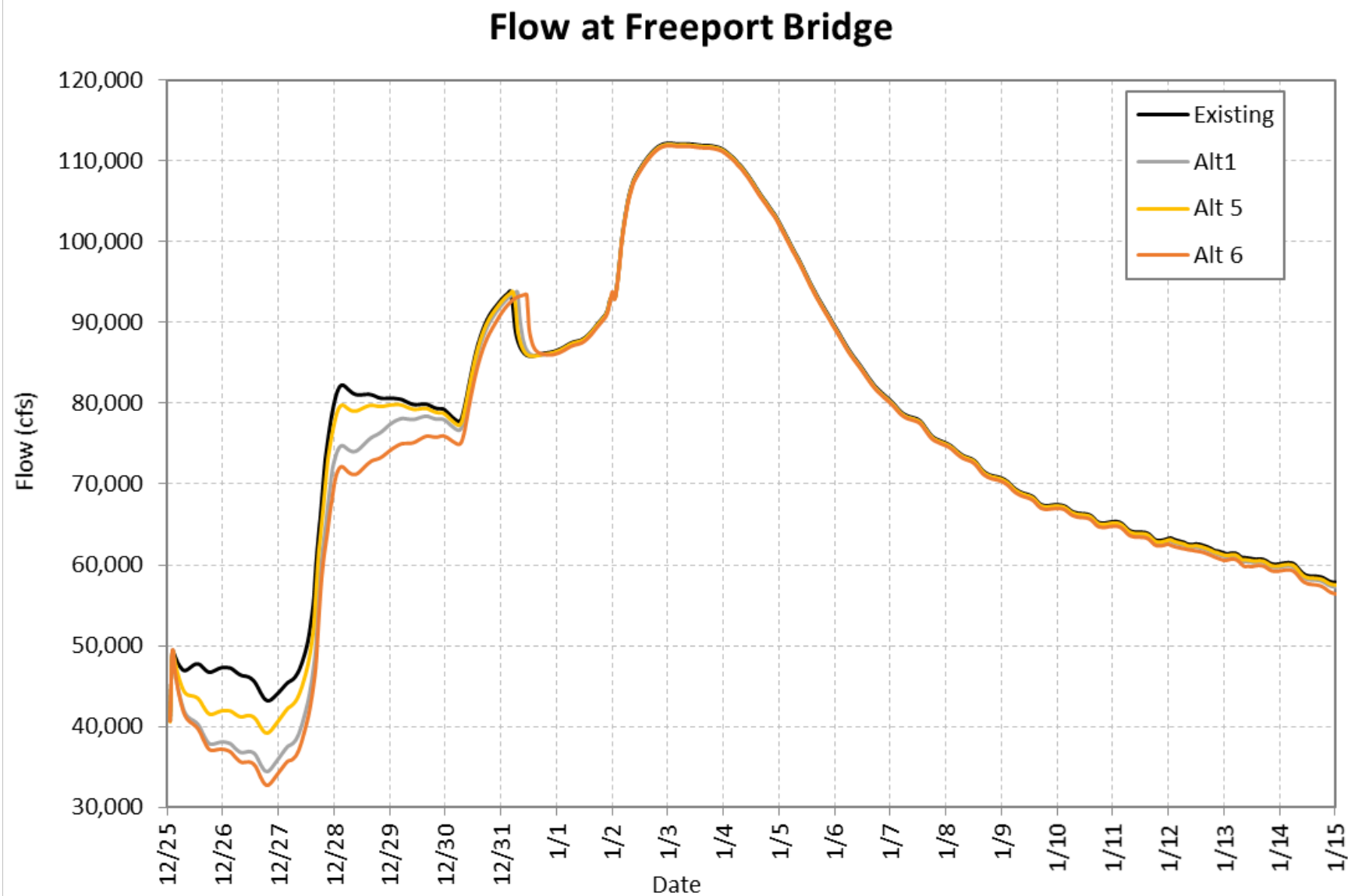


Figure 21. Flow Hydrographs for Existing, Alternative 1, 5 and 6 Along Sacramento River at Freeport Bridge

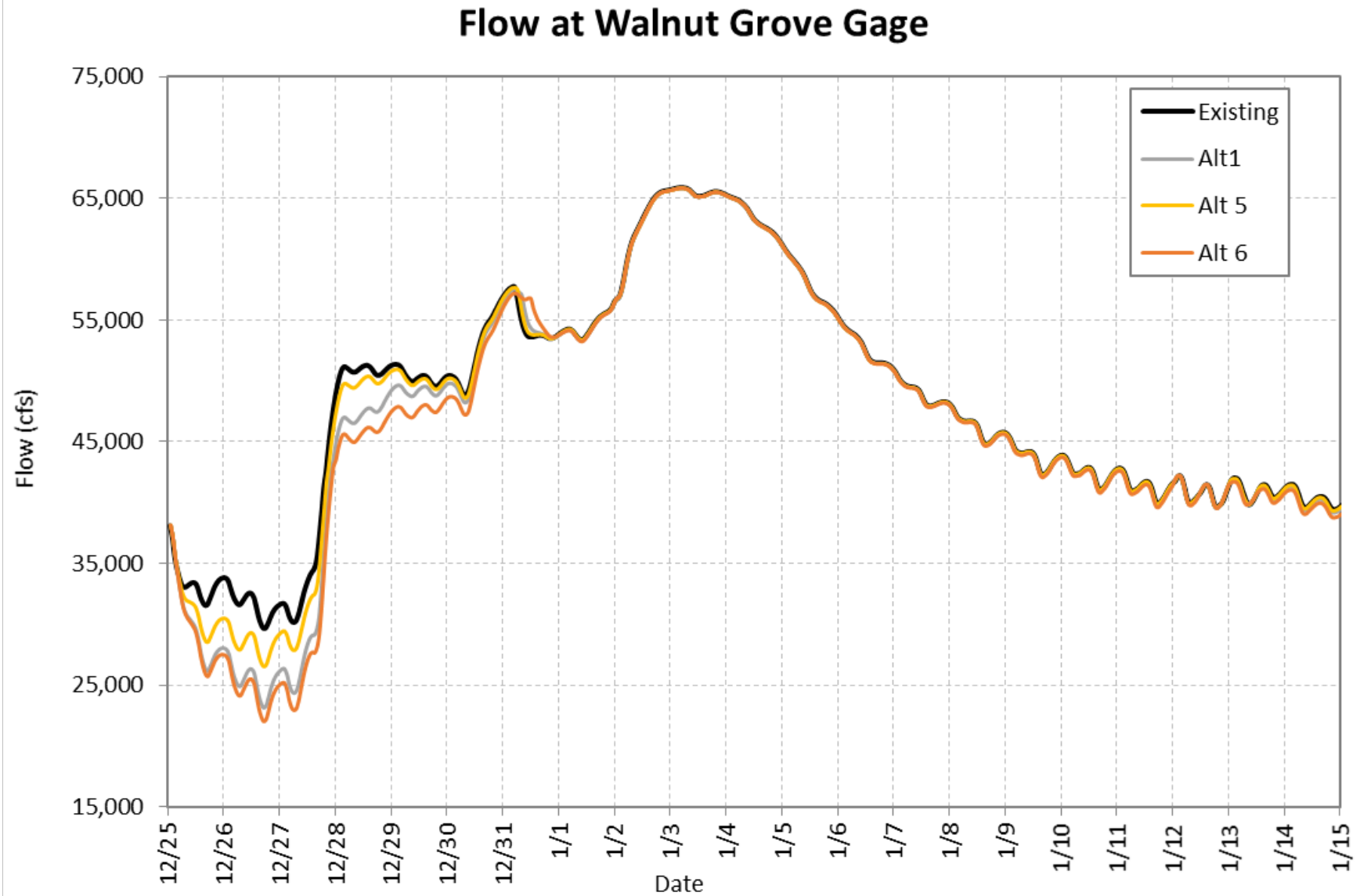


Figure 22. Flow Hydrographs for Existing, Alternative 1, 5 and 6 Along Sacramento River at Walnut Grove Gage

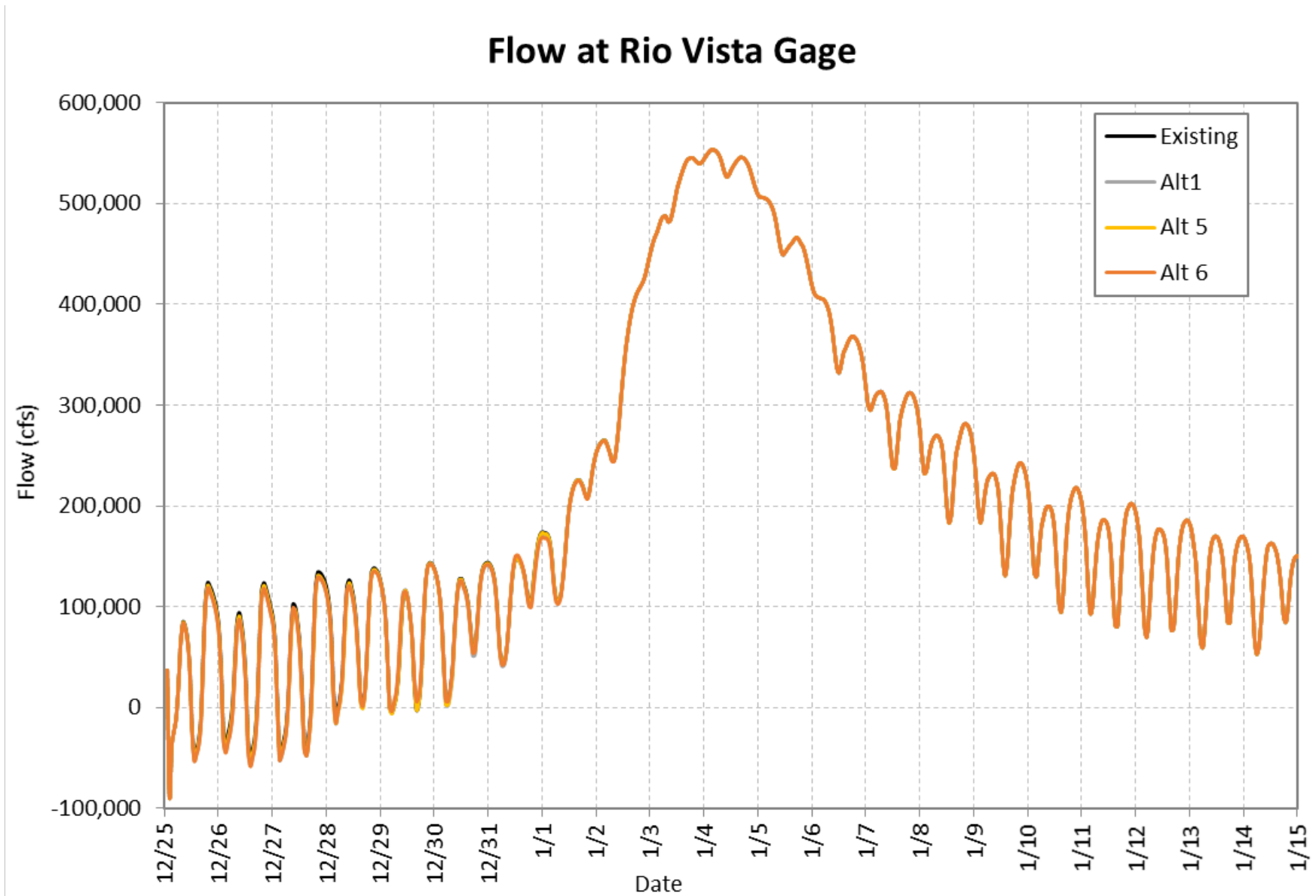


Figure 23. Flow Hydrographs for Existing, Alternative 1, 5 and 6 Along Sacramento River at Rio Vista Gage

Flow at Yolo Bypass at I-5

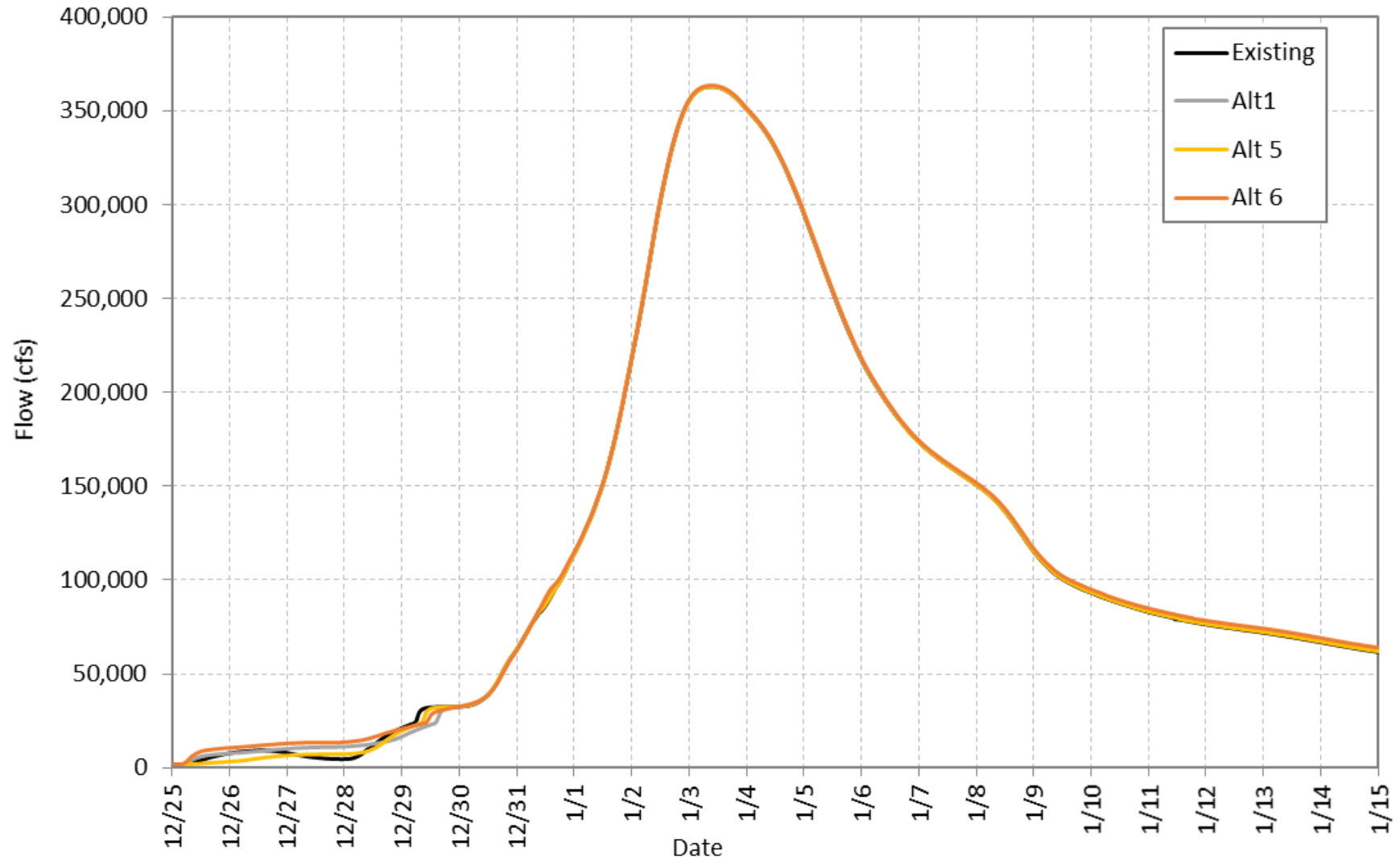


Figure 24. Flow Hydrographs for Exiting, Alternative 1, 5 and 6 Along Yolo Bypass at I-5

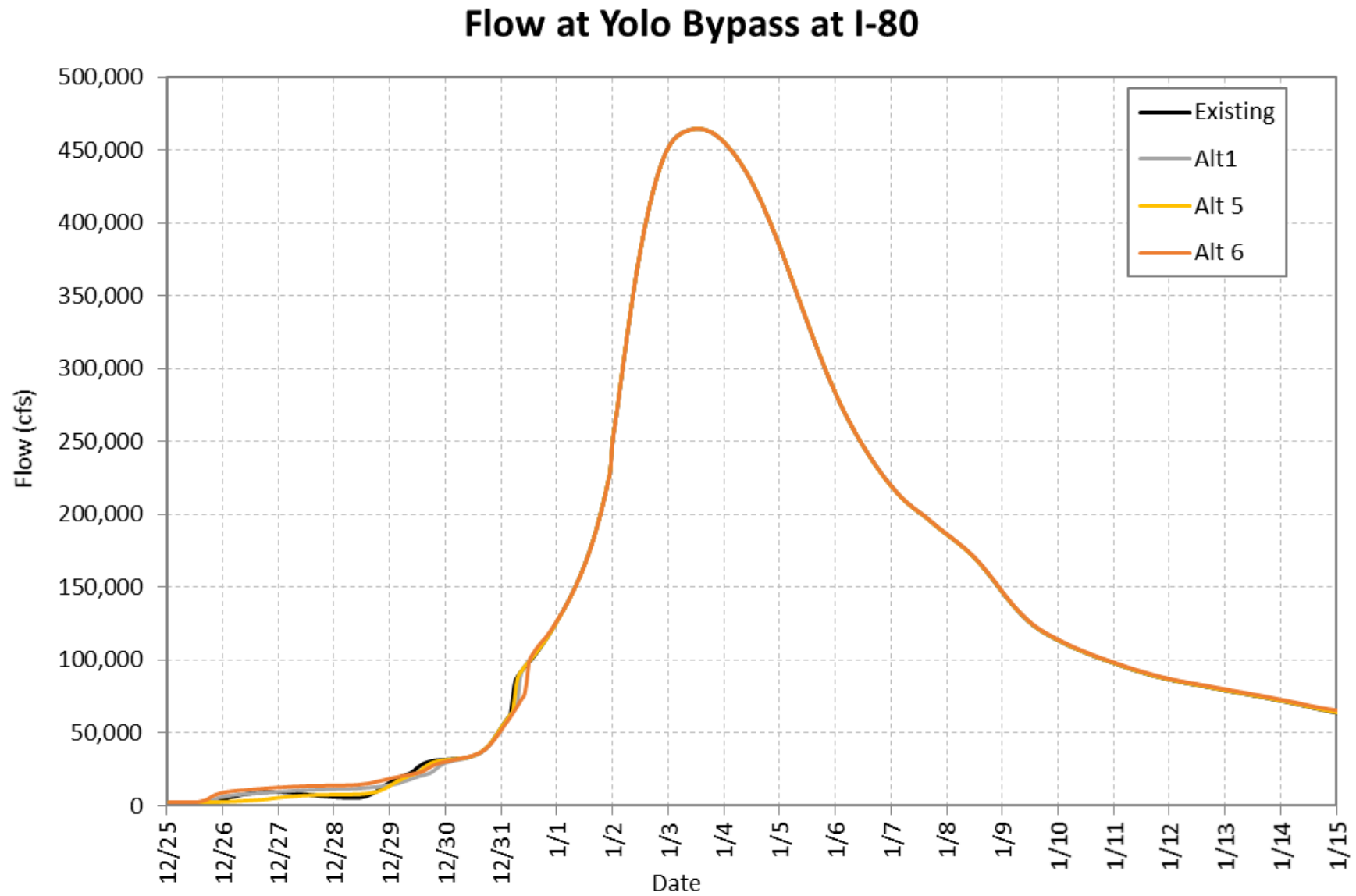


Figure 25. Flow Hydrographs for Exiting, Alternative 1, 5 and 6 Along Yolo Bypass at I-80

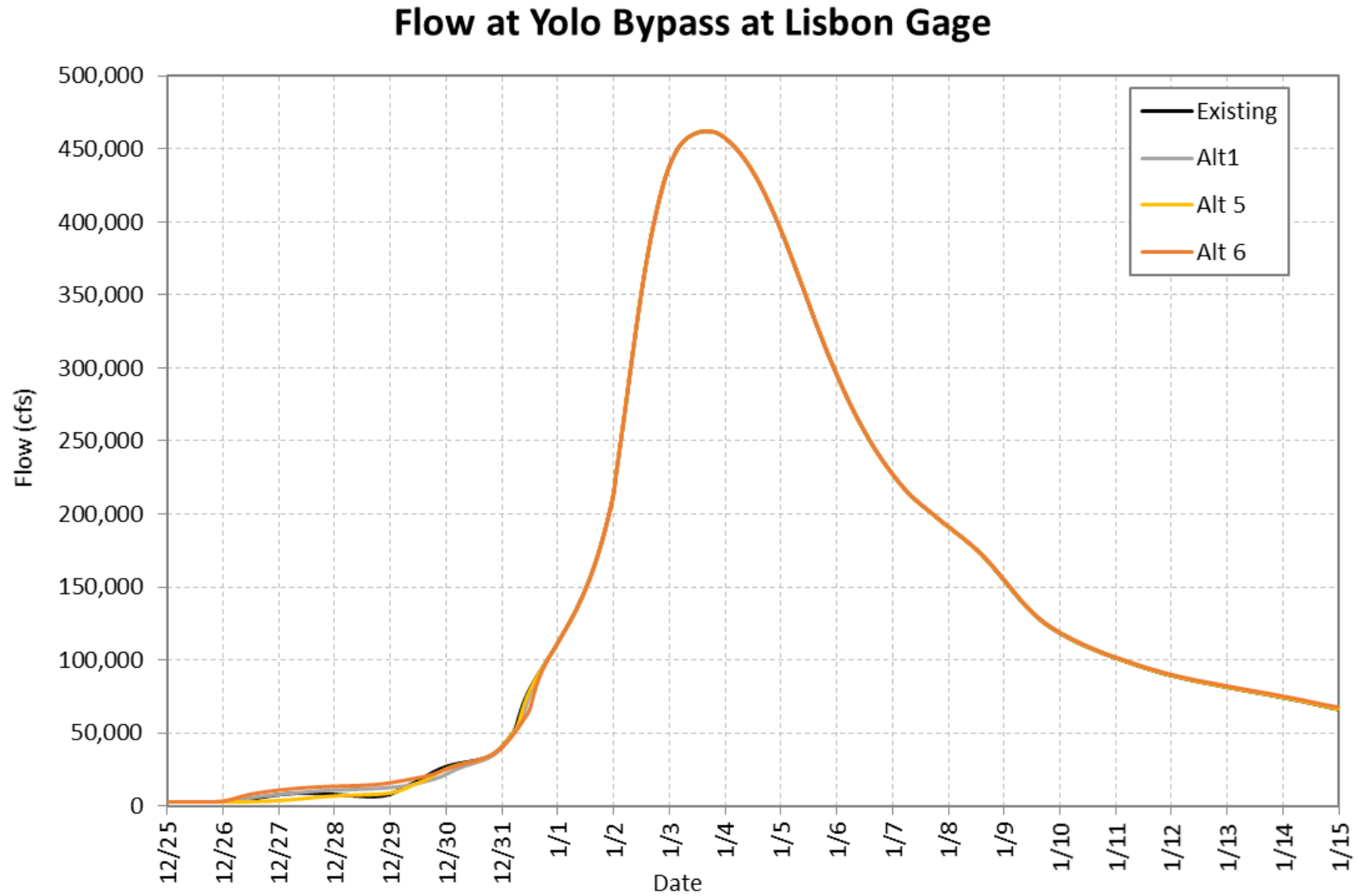


Figure 26. Flow Hydrographs for Existing, Alternative 1, 5 and 6 Along Yolo Bypass at Lisbon Gage

Flow at Yolo Bypass at Holland Tract

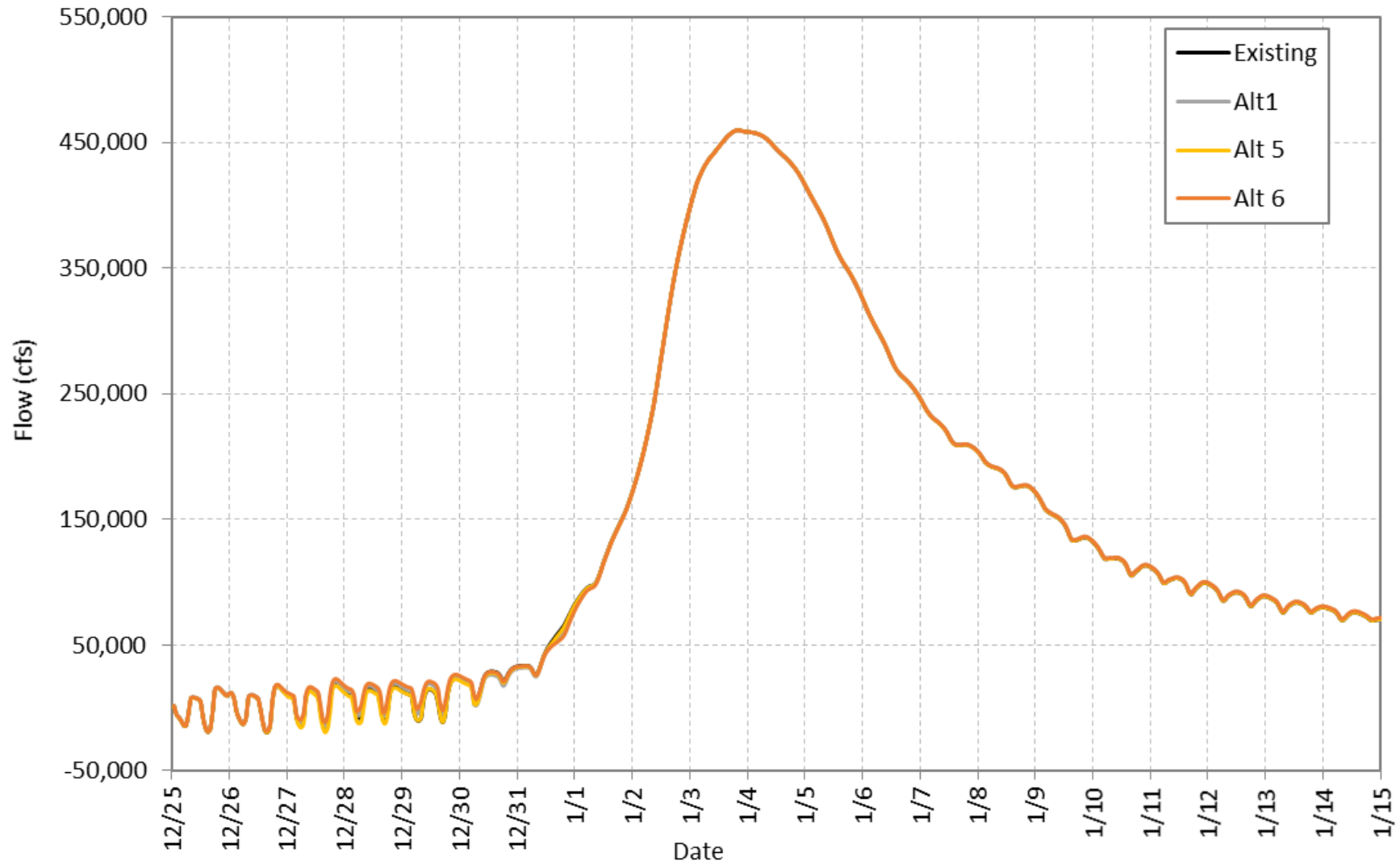


Figure 27. Flow Hydrographs for Existing, Alternative 1, 5 and 6 Along Yolo Bypass at Holland Tract

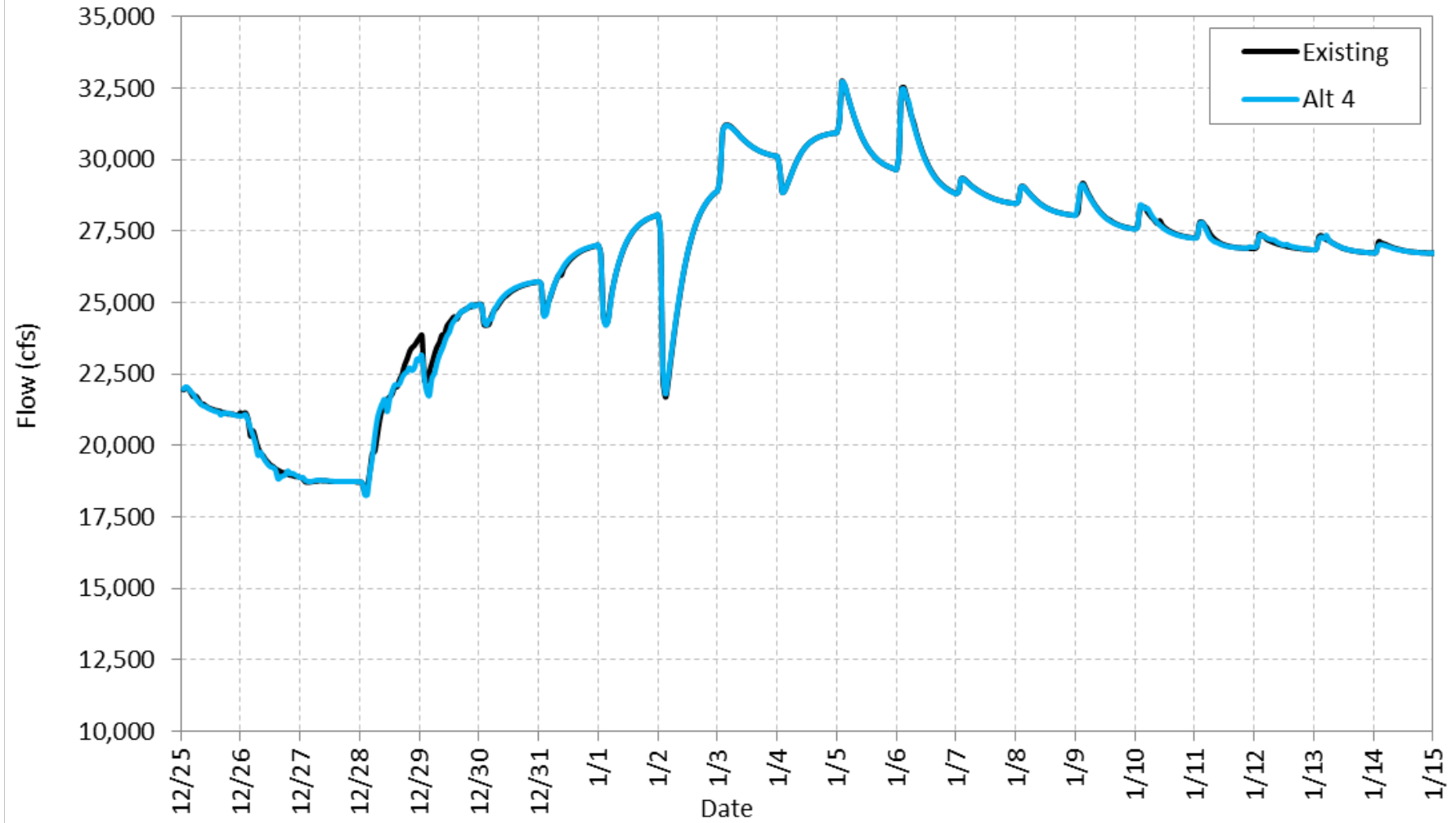


Figure 28. Flow Hydrographs for Existing and Alternative 4 along Sacramento River at upstream of the Fremont Weir

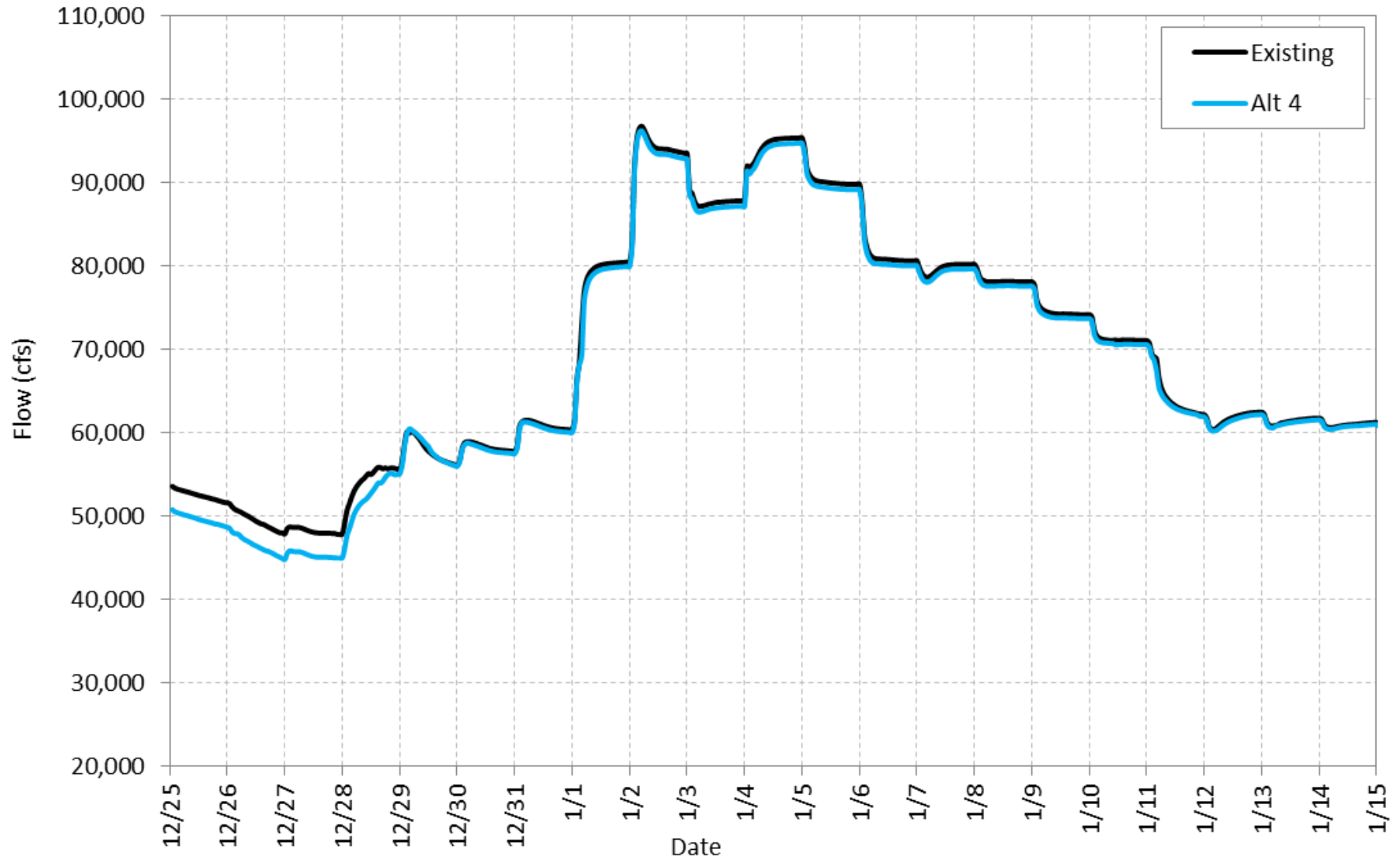


Figure 29. Flow Hydrographs for Existing and Alternative 4 along Sacramento River at Verona Gage

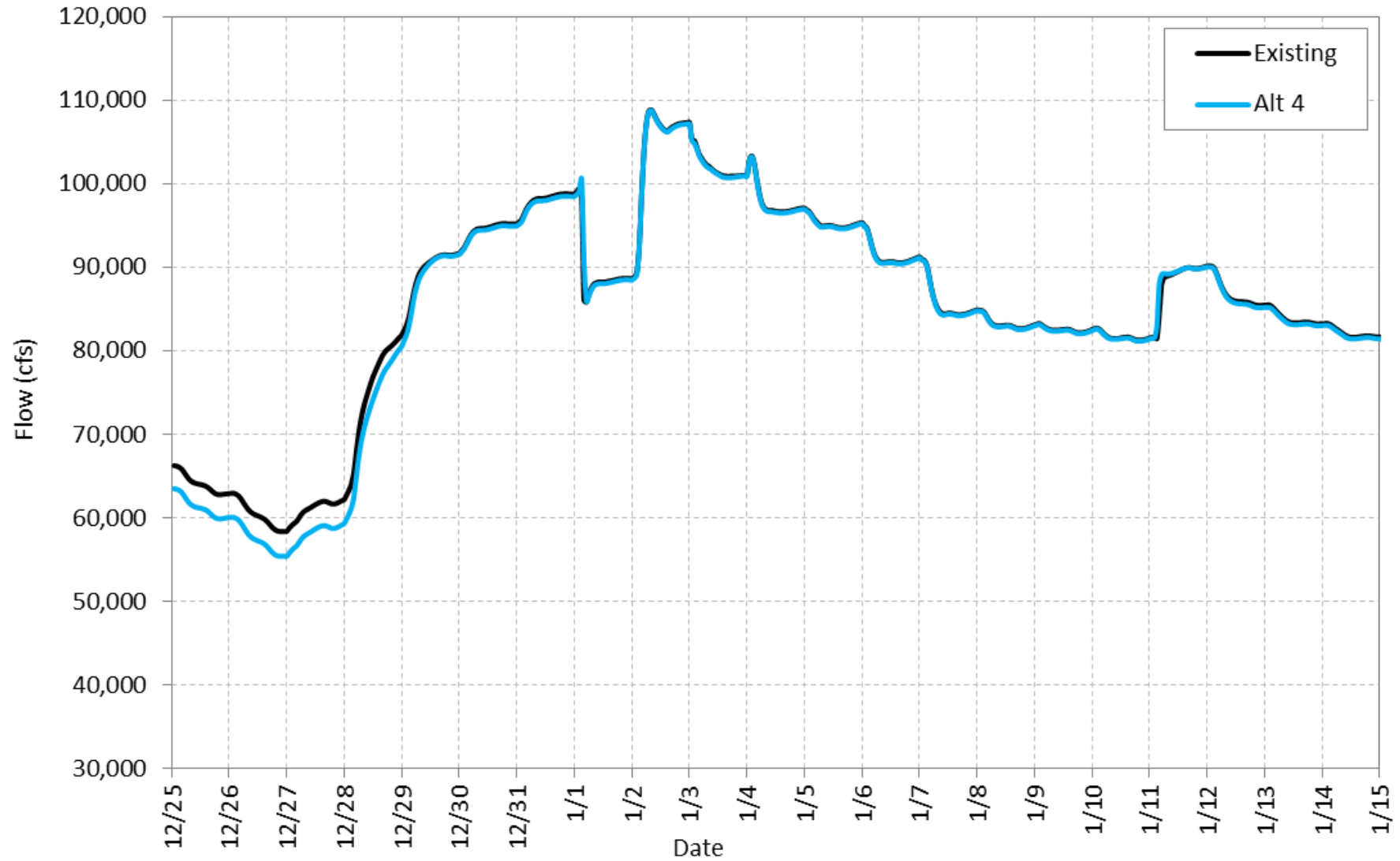


Figure 30. Flow Hydrographs for Existing and Alternative 4 along Sacramento River at I-Street Bridge

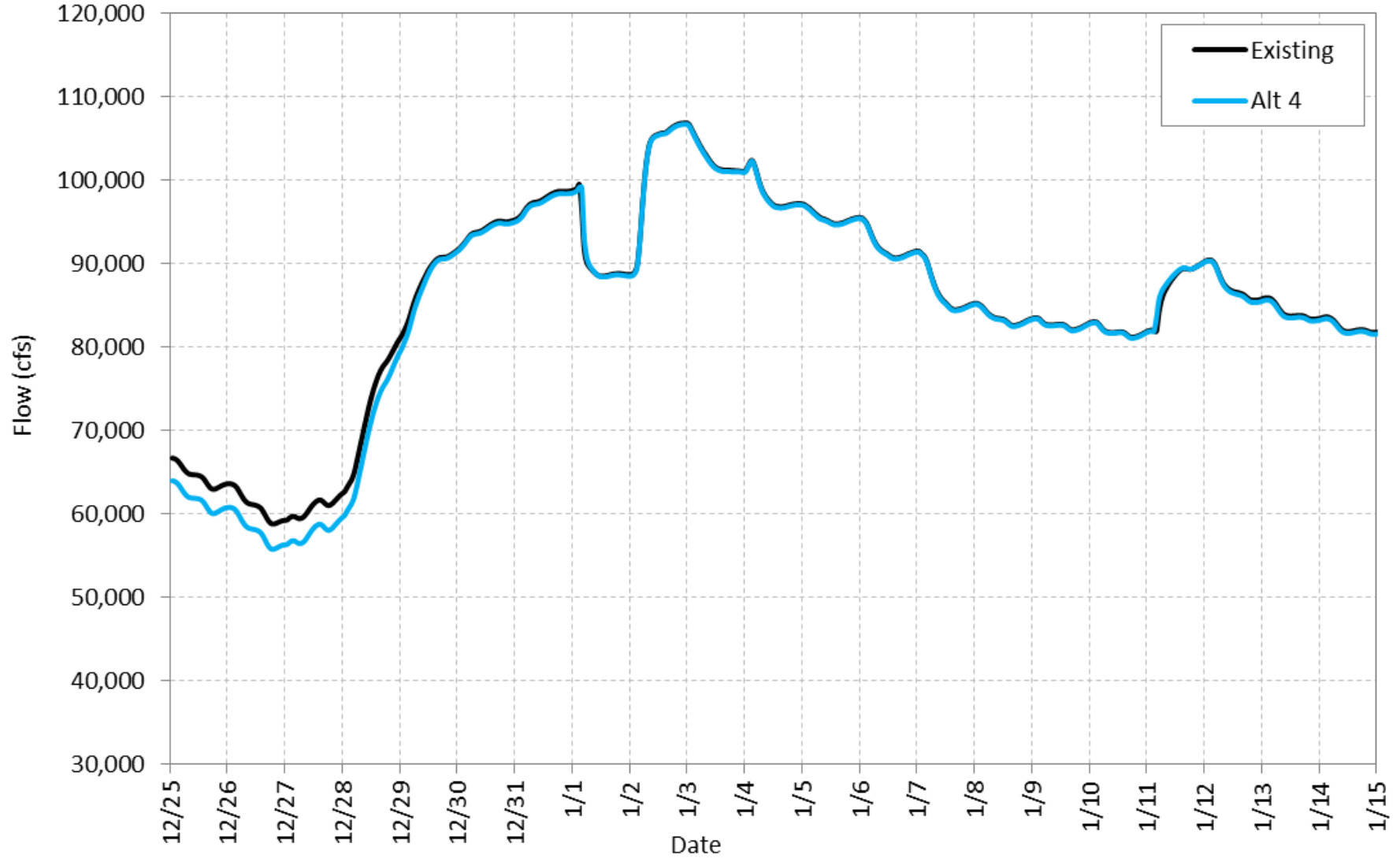


Figure 31. Flow Hydrographs for Existing and Alternative 4 along Sacramento River at Freeport Bridge

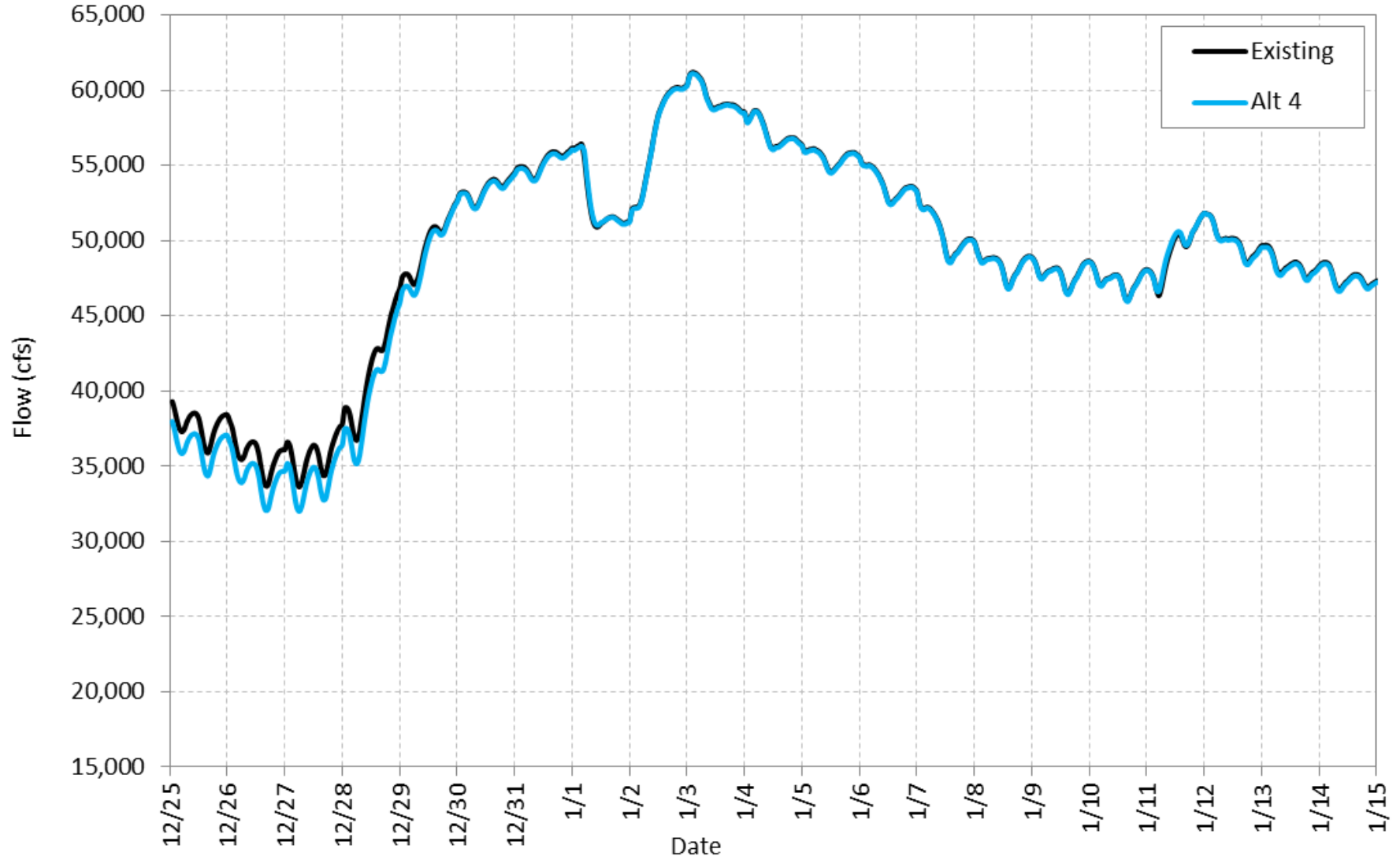


Figure 32. Flow Hydrographs for Existing and Alternative 4 along Sacramento River at Walnut Grove Gage

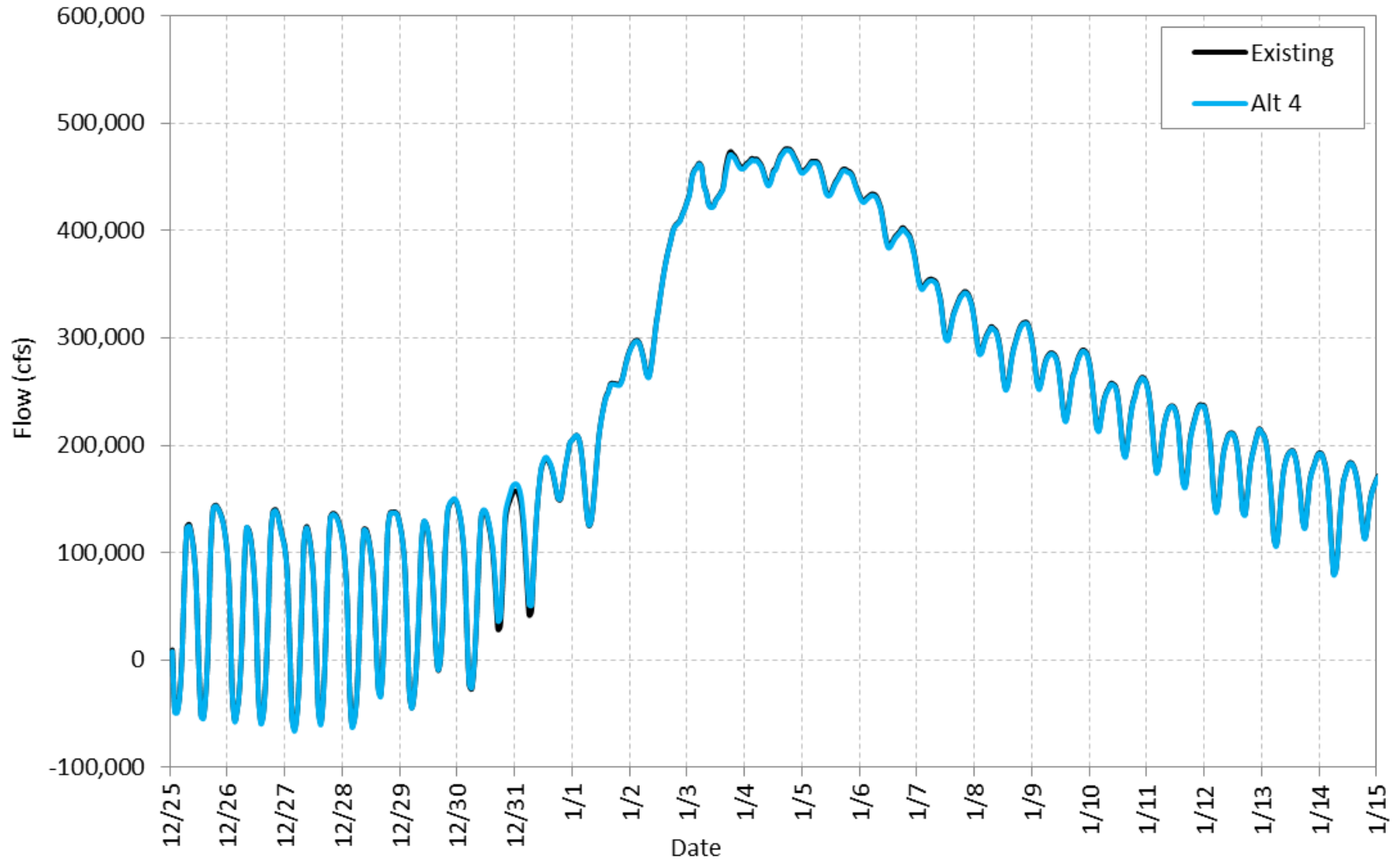


Figure 33. Flow Hydrographs for Existing and Alternative 4 along Sacramento River at Cache Creek

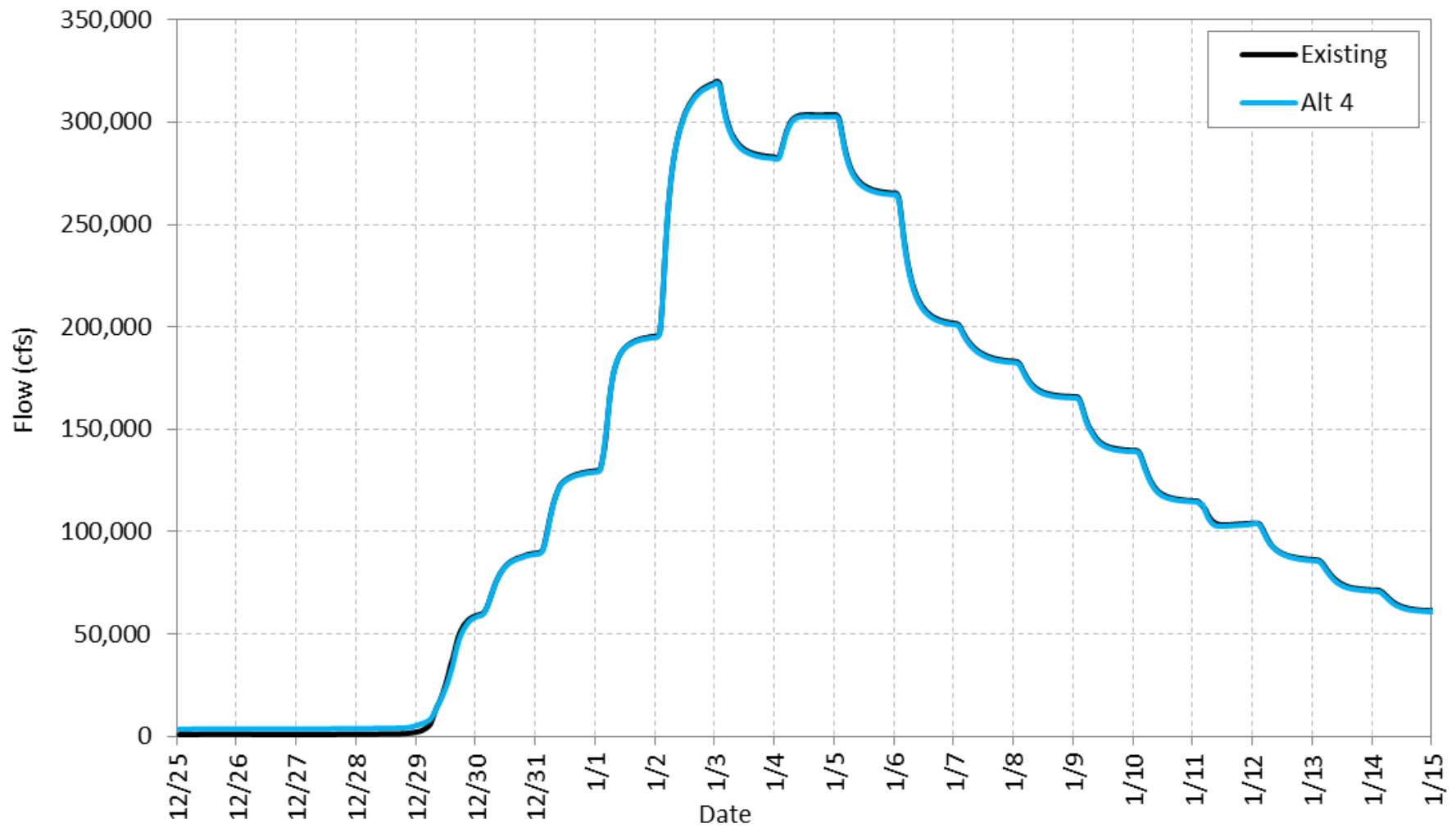


Figure 34. Flow Hydrographs for Existing and Alternative 4 along Yolo Bypass at I-5

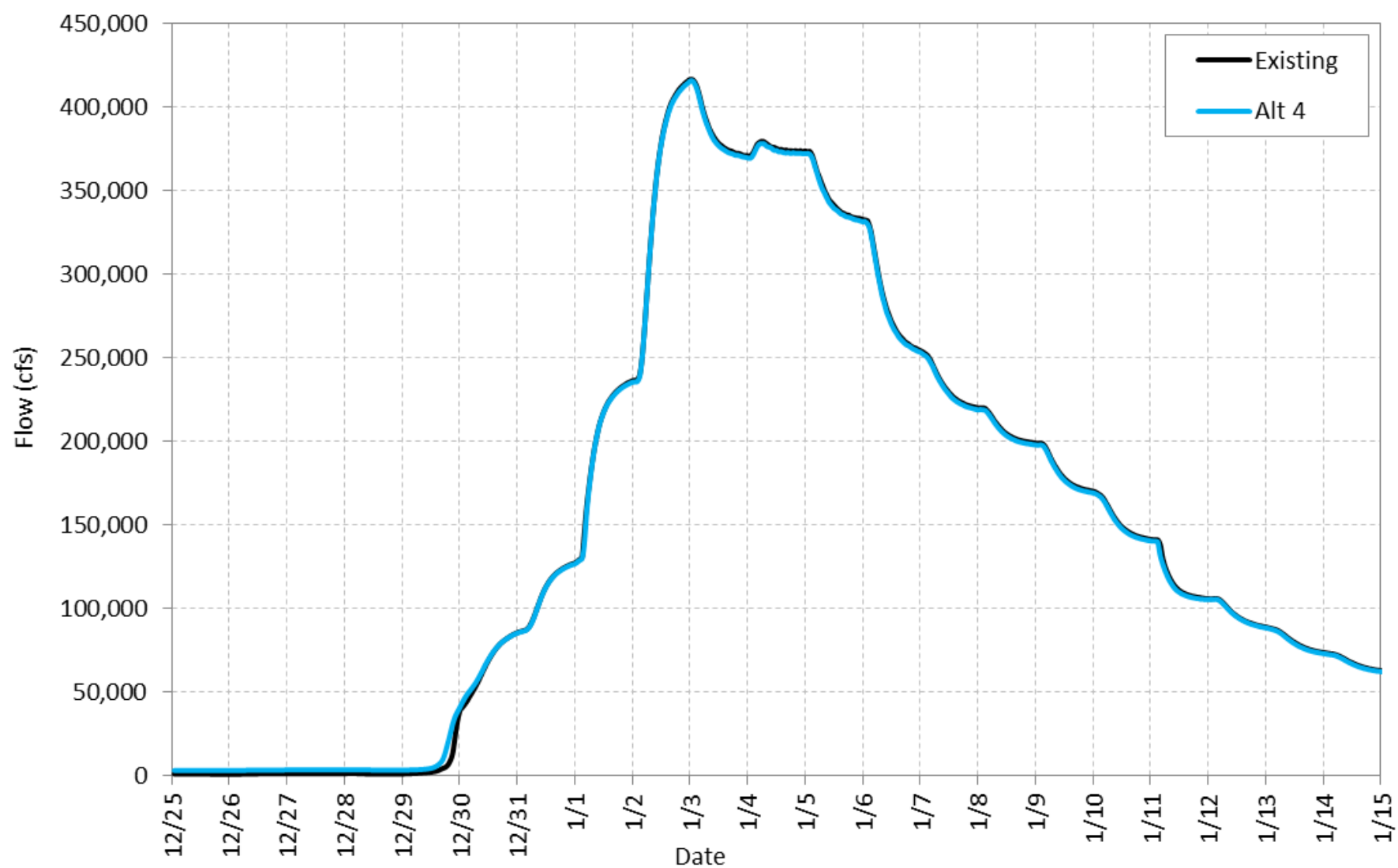


Figure 35. Flow Hydrographs for Existing and Alternative 4 along Yolo Bypass at I-80

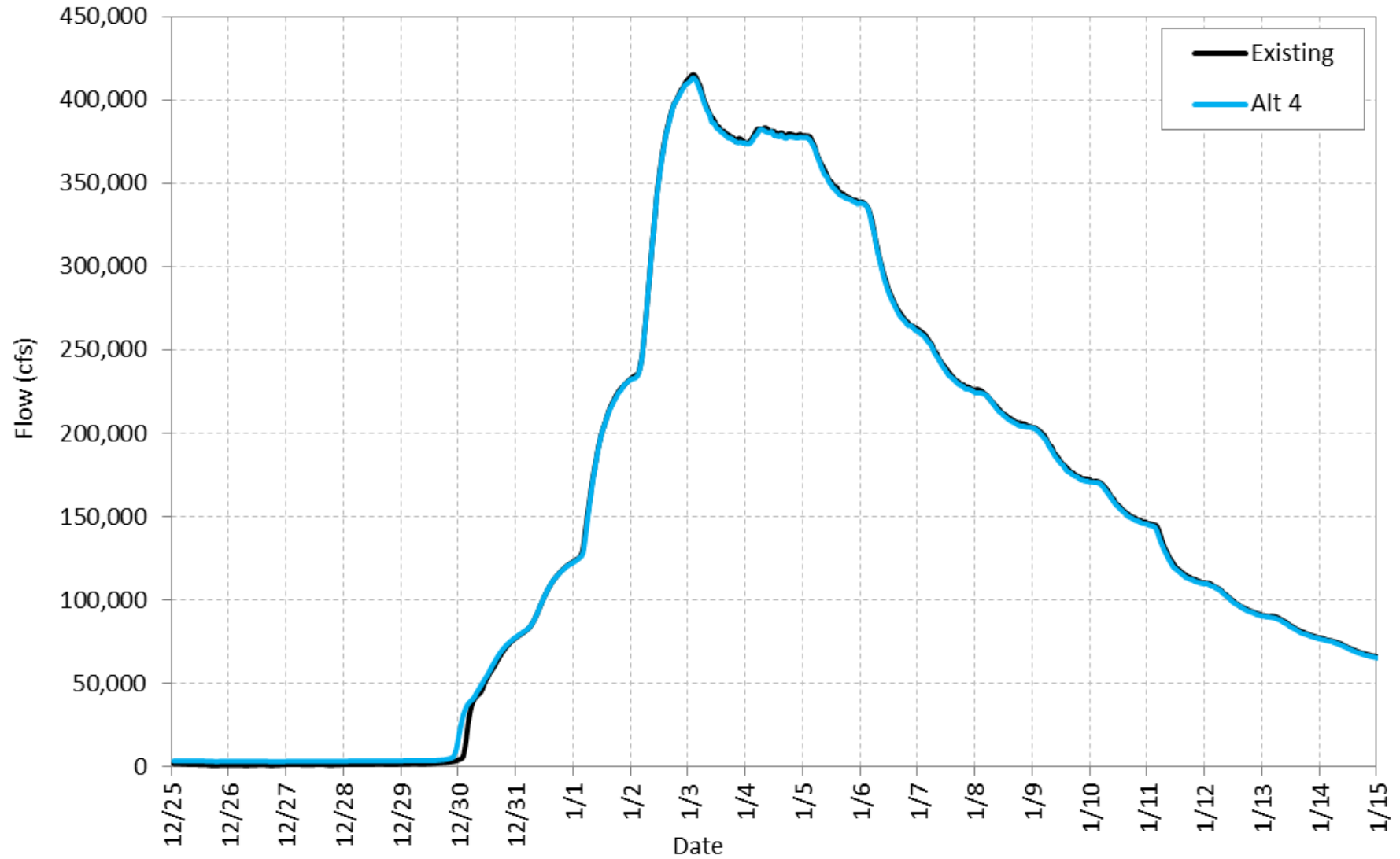


Figure 36. Flow Hydrographs for Existing and Alternative 4 along Yolo Bypass at Lisbon Gage

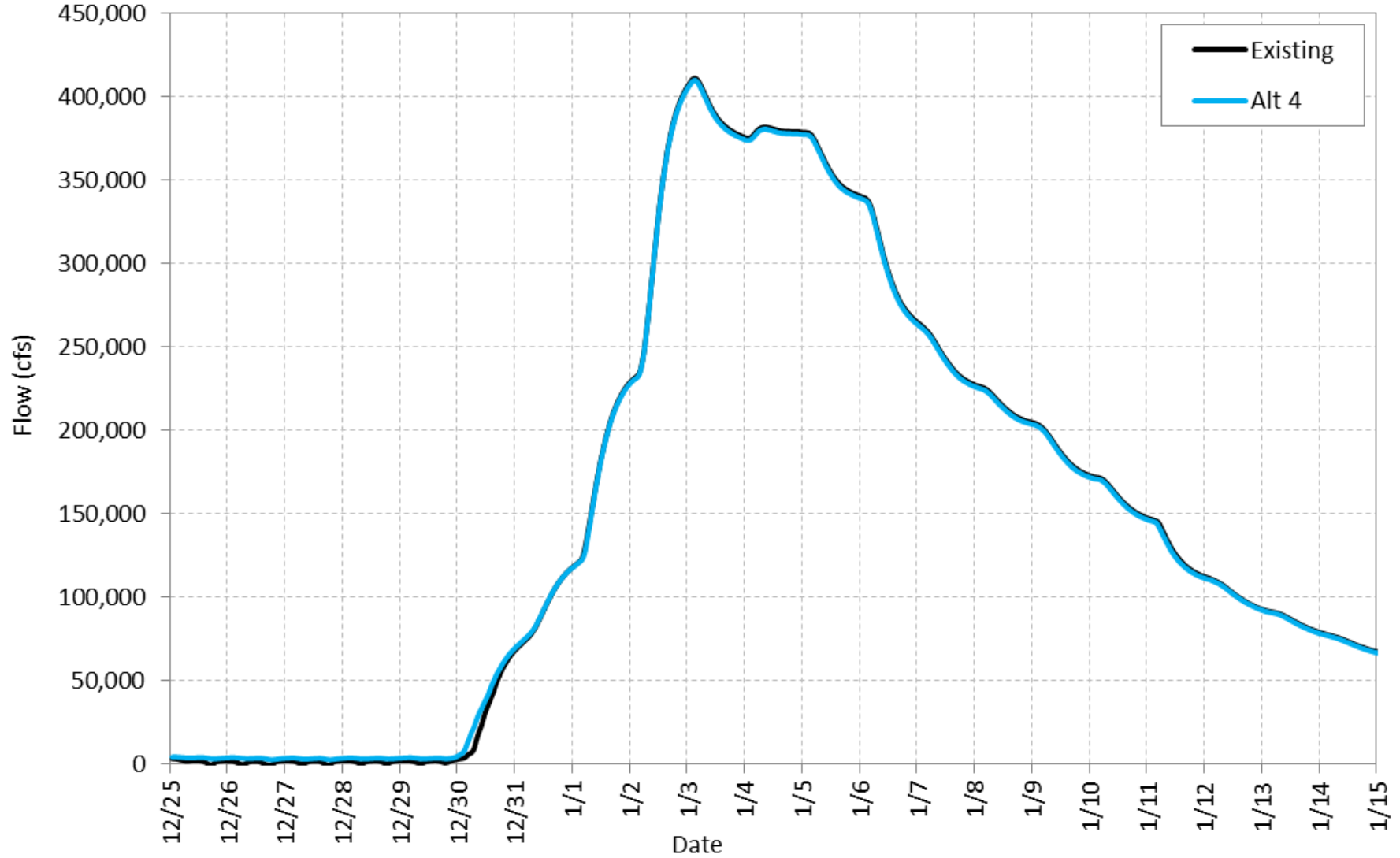


Figure 37. Flow Hydrographs for Existing and Alternative 4 along Yolo Bypass at Thomsen Road

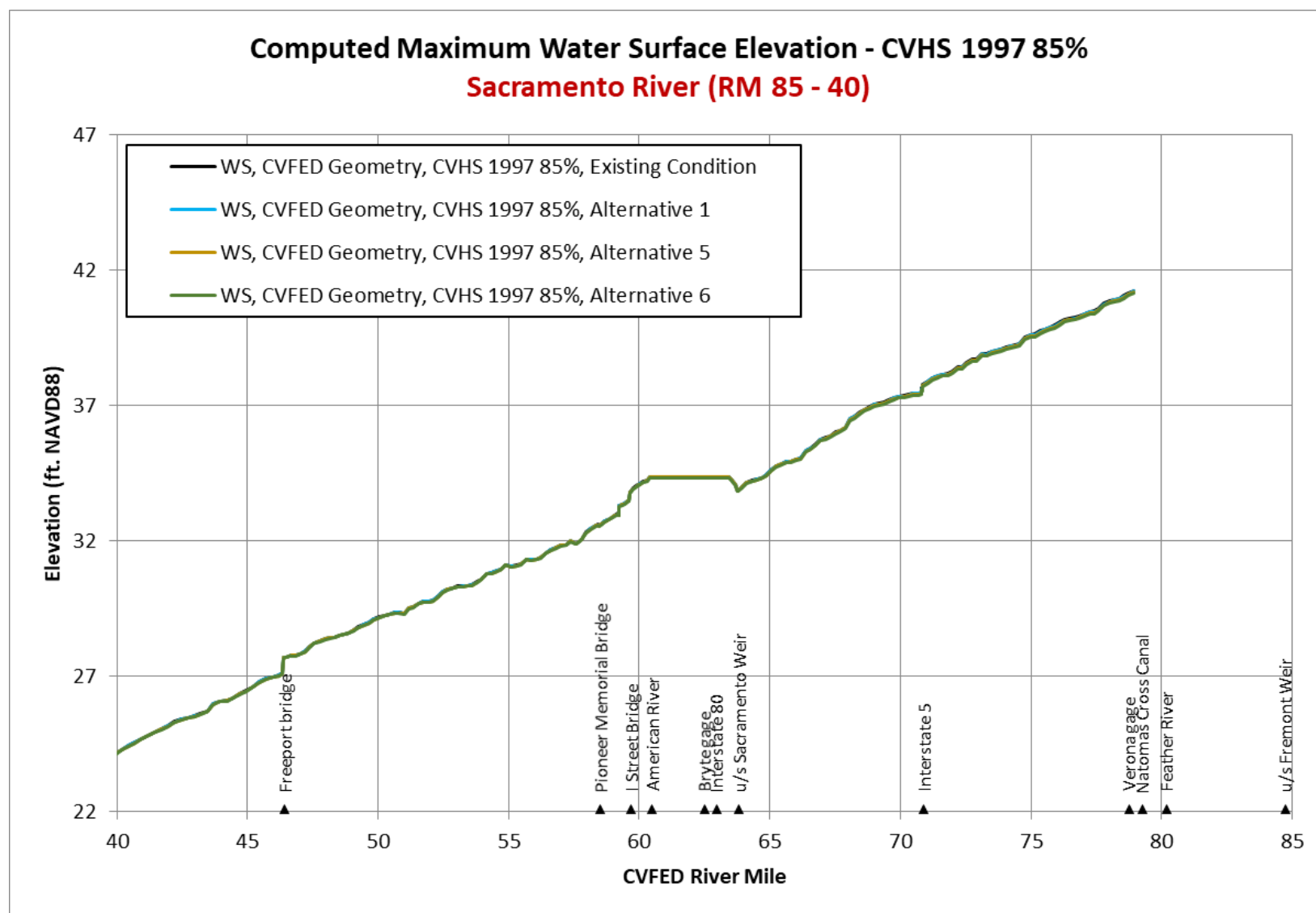


Figure 38. Maximum WSEs for Existing and Alternatives 1, 5 and 6 along Sacramento from CVFED River Mile 40 to 85

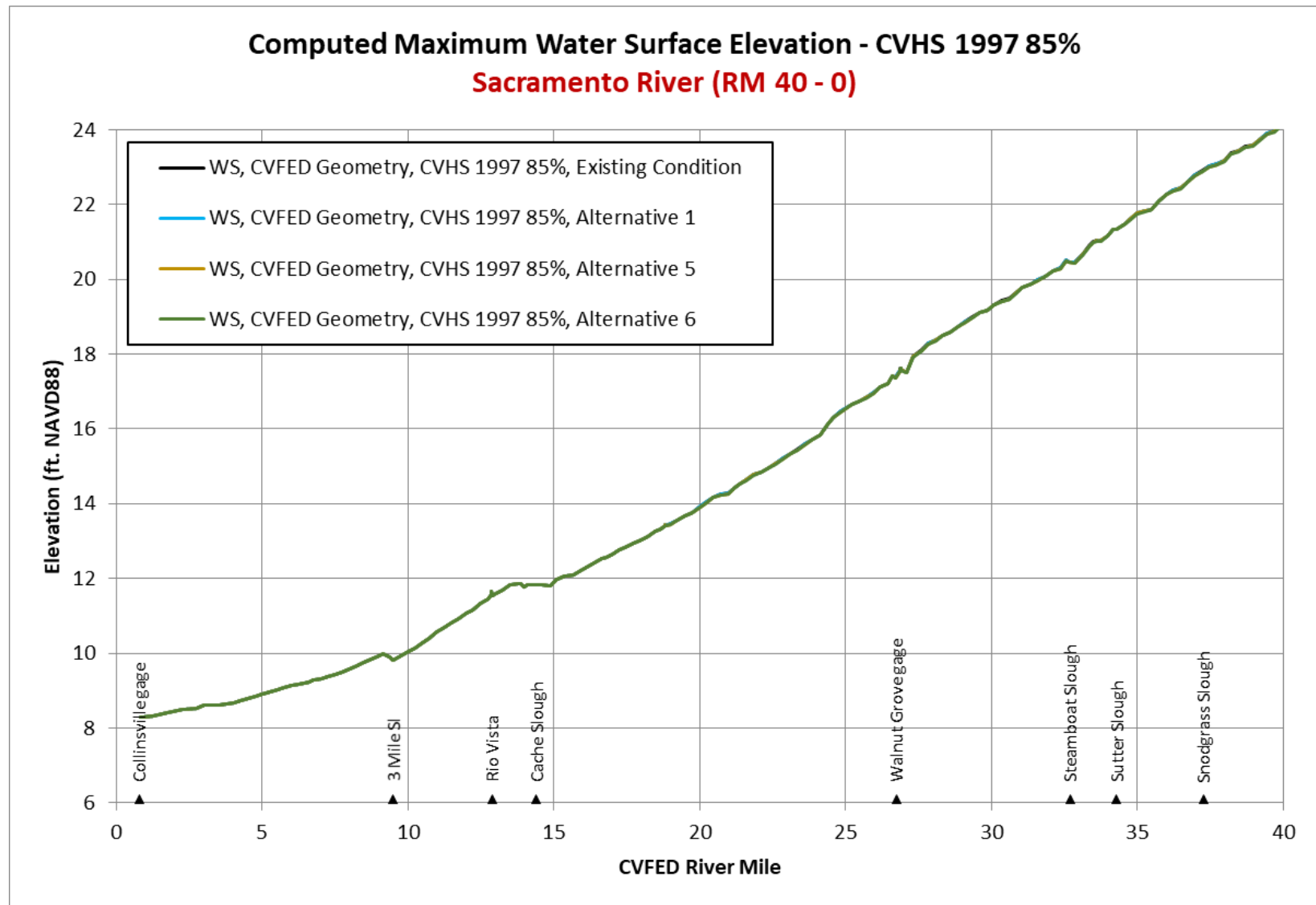


Figure 39. Maximum WSEs for Existing and Alternatives 1, 5 and 6 along Sacramento River from CVFED River Mile 0 to 40

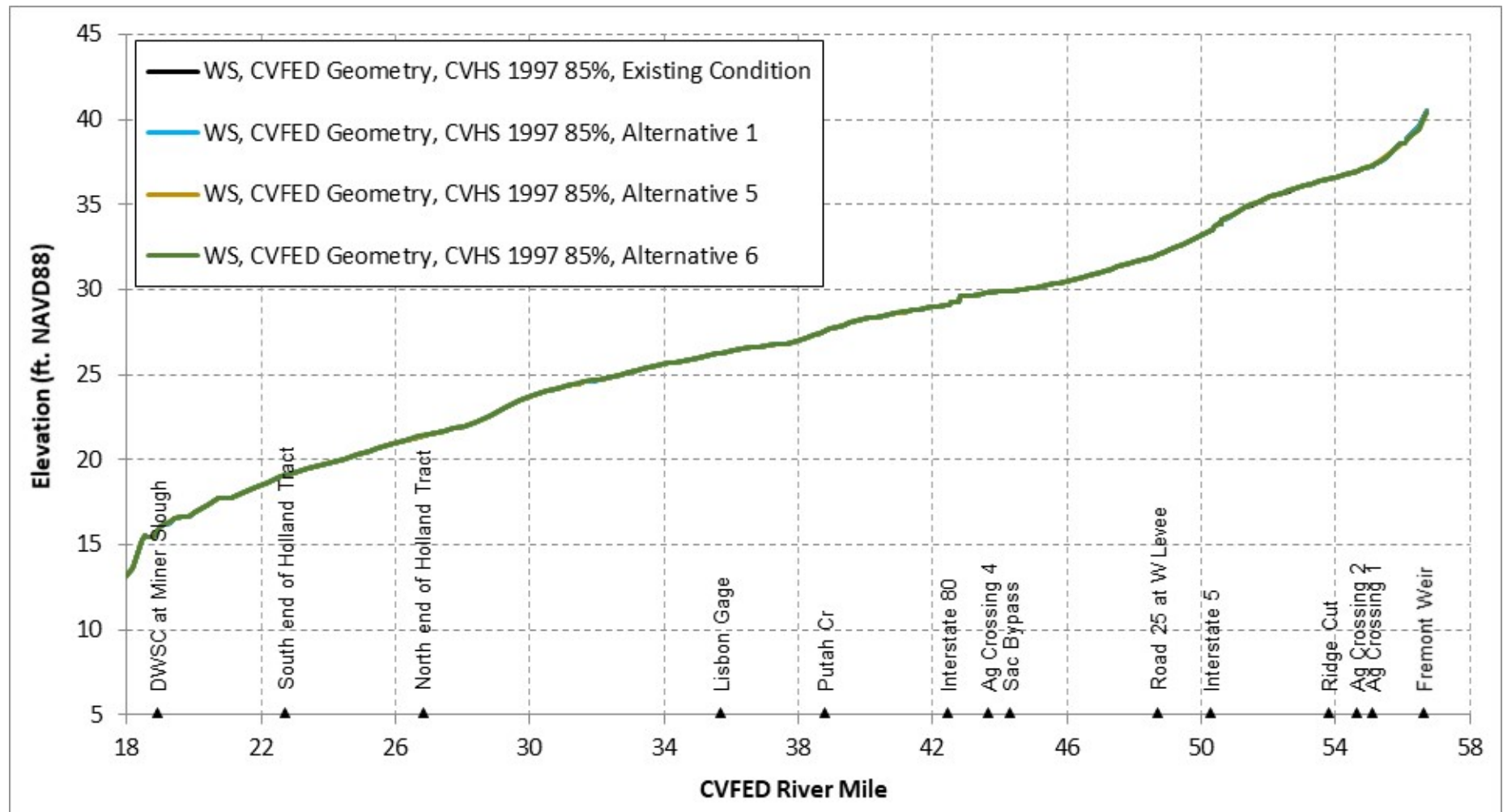


Figure 40. Maximum WSEs for Existing and Alternatives 1, 5 and 6 along Yolo Bypass

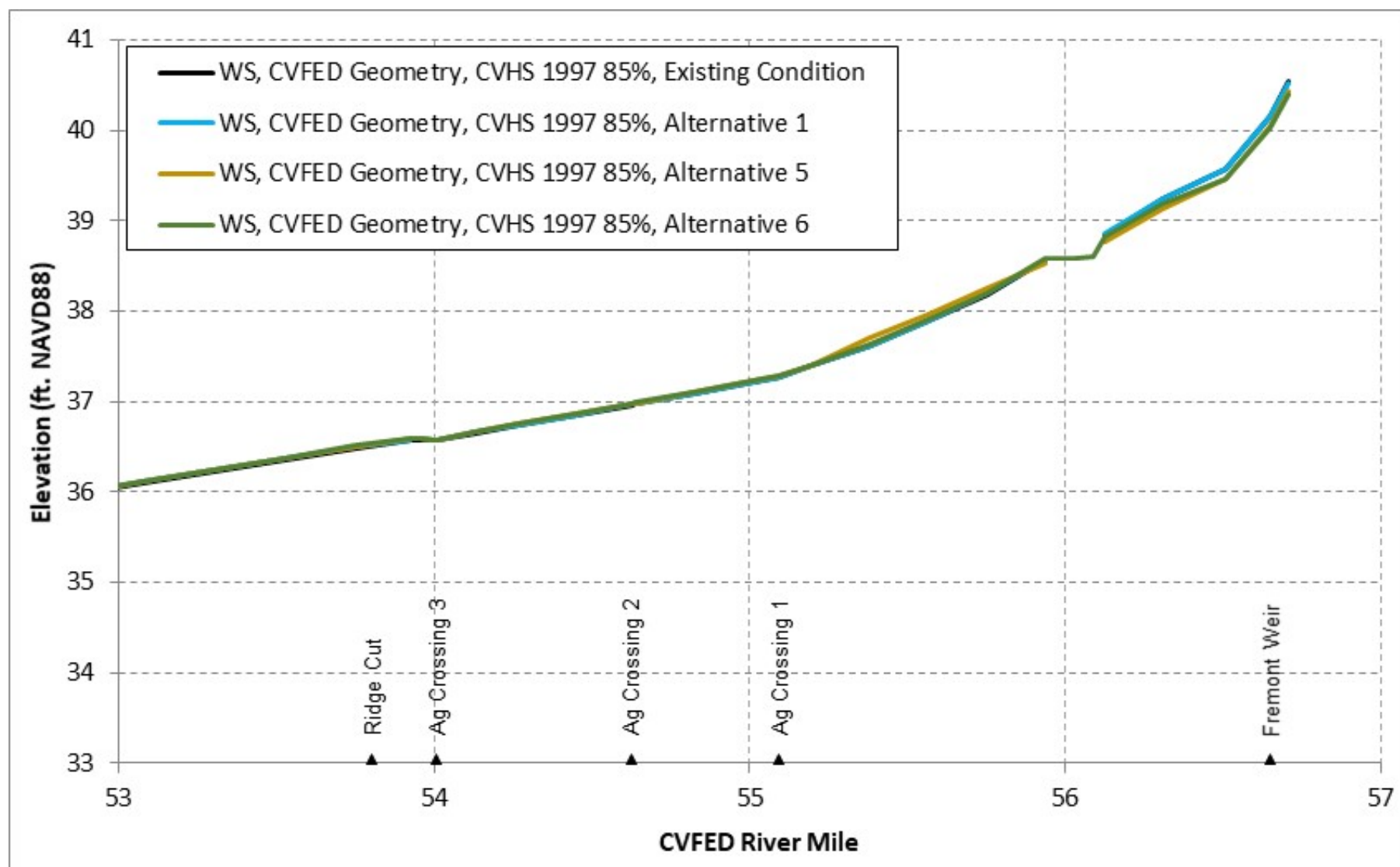


Figure 41. Maximum WSEs for Existing and Alternatives 1, 5 along Yolo Bypass near Agricultural Crossings 1 and 2

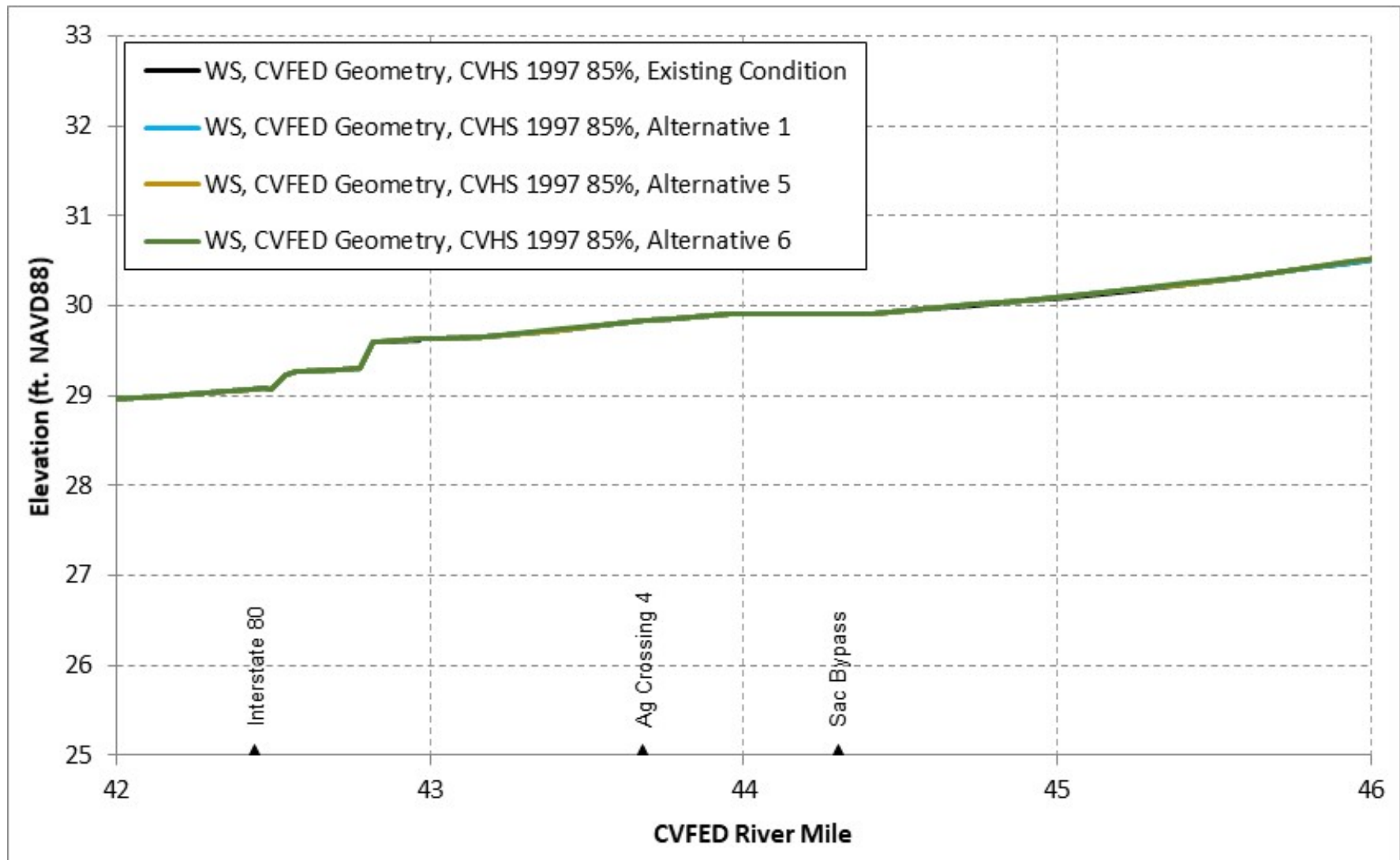


Figure 42. Maximum WSEs for Existing and Alternatives 1, 5 and 6 along Yolo Bypass at Agricultural Crossing 4

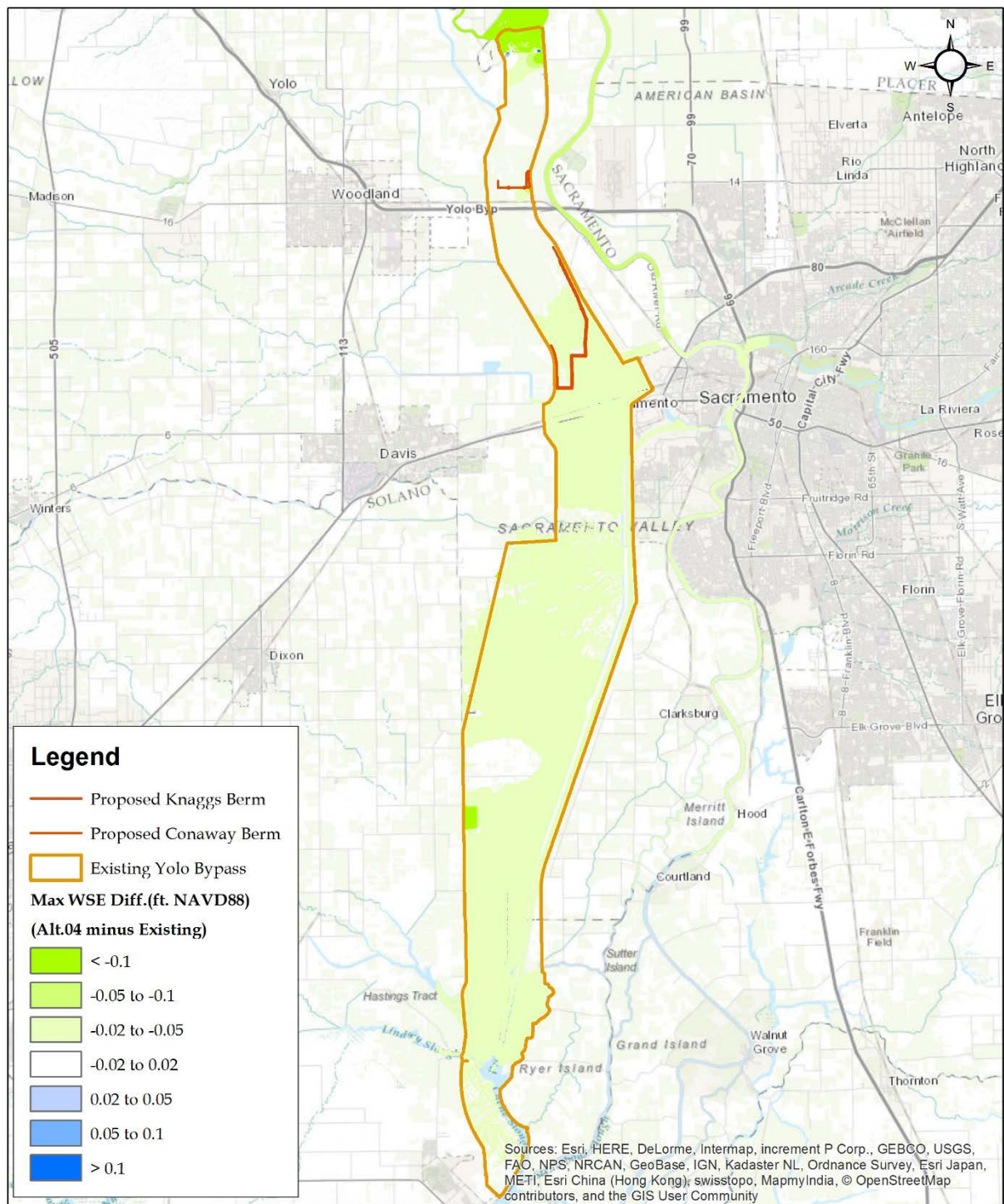


Figure 43. Alternative 4 Impact on maximum WSEs within the Yolo Bypass

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Appendix S
Supplemental Fish Passage and Reduced
Flow Analysis

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Draft Technical Memorandum

**Supplemental Fish Passage
and Reduced Flow Inundation
Analysis for EIS/EIR
Alternatives**

Yolo Bypass Salmonid
Habitat Restoration &
Fish Passage Project –
Ten Percent Design

Yolo County, CA

~~September, 2018~~ February 2019



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TECHNICAL MEMORANDUM

YOLO BYPASS SALMONID HABITAT RESTORATION & FISH PASSAGE PROJECT

Supplemental Fish Passage and Reduced Inflow Inundation Analysis for EIS/EIR Alternatives

SEPTEMBER, 2018

1. PURPOSE AND BACKGROUND

This report evaluates inundation changes in the Yolo Bypass resulting from potential operations of the EIR/EIS alternatives for improving adult fish passage and for operating at lower flowrates. Operation scenarios that were evaluated include:

- Fish Passage Opportunities Post Floodplain Rearing Habitat Operations
- Operations with Reduced Inflows Pre-March 15th— Operating the headworks with lower maximum inflows between November 1st and March 15th

The following describes the methods and results of the above analyses. For a complete description of the TUFLOW model development, please refer to previously prepared reports (DWR, 2017a; DWR, 2017b).

2. FISH PASSAGE OPPORTUNITIES POST FLOODPLAIN REARING HABITAT OPERATIONS

2.1 DESCRIPTION

EIR/EIS alternatives aim to improve adult fish passage and enhance floodplain rearing habitat between November 1st to either March 7th or March 15th. The proposed project inflows from Sacramento River into the Yolo Bypass during this period would be the source for achieving both objectives. Adult migratory fish, salmon and sturgeon, can be present in the Yolo Bypass through April 30th. Operating the project for fish passage for salmon and sturgeon post March 7th and March 15th has the potential to impact inundation and drainage in the Yolo Bypass. To determine a maximum adult fish passage operations flowrate that would avoid increasing inundation and drainage time in the Yolo Bypass, an additional time series analysis was conducted for a period between March 16th and April 30th. The results of this analysis could also be applied to a March 7th end date of floodplain rearing habitat operations.

The flow capacity of the Tule Canal was analyzed between Agricultural Crossing #1 and just downstream of Interstate 5 by reviewing the TUFLOW model outputs (i.e., Tule Canal stage and flow, 2D inundation mapping) of the existing conditions simulations. This reach was selected because its capacity (before overtopping agricultural berms and inundating farm fields) is smaller than downstream reaches and because its capacity is affected by contributions from Knights Landing Ridge Cut (KLRC) and the Cache Creek Settling Basin (CCSB). Based on the TUFLOW model outputs, it was determined that the capacity of the Tule Canal is approximately 1,000 cfs as limited by the reach immediately upstream of the KLRC

confluence and by the reach immediately downstream of Interstate 5. Upstream of KLRC, the Tule Canal capacity is restricted due to the backwater influence of KLRC flows entering the Tule Canal. Downstream of Interstate 5, the Tule Canal capacity is limited because the agricultural berms that once restricted frequent inundation into the northern end of the Conaway property onto the lower bench are degraded. This capacity estimate was verified by flow measurements taken by cbec on February 9, 2010 during the receding limb of an overtopping event. Knowing the maximum capacity of the Tule Canal, the existing conditions TUFLOW results were analyzed to determine the typical remaining capacity of the Tule Canal between March 15th and April 30th. This analysis indicated that 200 cfs to 300 cfs should be considered the maximum inflow post floodplain rearing habitat operations for providing adult fish passage. To be conservative, a flowrate of 200 cfs was selected as the maximum flow for adult fish passage for post floodplain rearing habitat operations.

This analysis considered limiting inflows through the gated headworks of Alternative 1 at Fremont Weir to not exceed the capacity of the Tule Canal when combined with westside tributary inflows and during times when river stages are high enough to provide inflows for passage. However, inflow opportunities post March 15th do not always translate to fish passage opportunities due to depths and flow velocities falling outside the passage criteria. While the current configuration of the paired headworks and transport channel for each alternative does not provide sturgeon passage for flows as low as 200 cfs, it is possible that minor changes within an alternatives footprint could be made to include a smaller transport channel, parallel to an alternatives transport channel, could be designed to meet sturgeon passage for this flowrate. As such, the minimum river stage at which the current headworks for Alternative 1 can provide 200 cfs, based upon the rating curve, is 17.7 ft. The river water surface elevation for Alternative 1 was based upon the analysis of the Sacramento River Stage just upstream of the proposed headworks structure. Alternative 1 is near the east side of the bypass.

2.2 RESULTS

For this analysis, the existing conditions TUFLOW model outputs for river stage and Tule Canal flow was queried daily for water years 1997 to 2012 to identify times when 1) the river stage was high enough to provide a least 200 cfs and 2) the Tule Canal had the ability to accommodate at least 200 cfs without exceeding the 1,000 cfs capacity limit. Figures 1 to 4 identify times when 1) the river stage was high enough to provide at least 200 cfs (blue fill), 2) the Tule Canal capacity could accommodate at least 200 cfs from the gated headworks (red fill), and 3) both criteria were met (yellow bar). In water years when passage opportunities were available, the opportunities ranged in length from 1 to 3 days to as much as 1 to 2 weeks and sometimes with multiple opportunities in a water year. In the times that opportunities were not available, either the river stage was too low to provide the minimum inflow (see water year 2007 results in Figure 4) or the Tule Canal had no capacity because the KLRC and the CCSB inflows were elevated as they tracked increases in Sacramento River stage (see water year 2006 results in Figure 4).

3. OPERATIONS WITH REDUCED INFLOWS PRE-MARCH 15TH

3.1 DESCRIPTION

To have a better understanding of how inundation changes with flow, the TUFLOW model for Alternative 1 was modified to reduce the maximum flow rate from 6,000 cfs to 1,000 cfs, 2,000 cfs, and 3,000 cfs. Alternative 1 was rerun for these three (3) maximum flow conditions for three (3) representative water

years (i.e., 2002 (dry), 2004 (normal), and 2006 (wet)). To be consistent with the original inundation modeling, the gates during overtopping remain in their last known configuration just prior to overtopping.

3.2 RESULTS

Figures 6 to 8 show the LDW results for 1,000 cfs for water years 2002, 2004, and 2006, respectively. For water year 2002, changes in LDW relative to existing conditions were negligible downstream of Interstate 80, but like the original gate operations upstream of Interstate 80. As noted in Section 2.1, the capacity of the Tule Canal upstream of Interstate 5 is approximately 1,000 cfs, and as such, the extra inflows provided by the gates in early March just before the end of the operational period readily inundate fields north of KLRC and immediately south of Interstate 5 where the canal capacity is constrained. This would suggest that augmenting non-overtopping flows just before the end of the operational period will likely result in LDW impacts north of Interstate 80 unless the gated inflows are much less than 1,000 cfs, which is consistent with the post March 15th findings described in Section 2.2. For water year 2004, changes in LDW relative to existing conditions were negligible and improved over the original gate operations. The original gate operations experienced system-wide changes of up to 1 week due to higher gated inflows on the receding limb of the overtopping flood. This would suggest that augmenting overtopping floods that occur just before the end of the operational period is possible without impacting LDW with flows greater than 1,000 cfs but less than 6,000 cfs. For water year 2006, changes in LDW relative to existing conditions were negligible like the original gate operations due to late season overtopping spanning the operational end date.

Figures 9 to 11 show the LDW results for 2,000 cfs for water years 2002, 2004, and 2006, respectively. Figures 12 to 14 show the LDW results for 3,000 cfs for water years 2002, 2004, and 2006, respectively. Comparing Figures 6, 9, 12, and A-31 for water year 2002 demonstrates that increasing the maximum inflow from 1,000 cfs to 6,000 cfs extends the LDW impacts south of Interstate 80. This is a result of exceeding the capacity of the Toe Drain when augmenting non-overtopping flows (i.e., tributary flows) with an additional 1,000 cfs to 2,000 cfs. Comparing Figures 7, 10, 13, and A-33 for water year 2004 demonstrates that increasing the maximum inflows above 3,000 cfs will have greater LDW impacts when augmenting overtopping flows that occur near the end of the operational period. This is confirmed by Figure 15 showing subtle changes in wetted area on the receding limb of the overtopping flows. Comparing Figures 8, 11, 14, and A-35 for water year 2006 demonstrates that there are no noticeable changes in LDW due to late season overtopping spanning the operational end date. This is confirmed by Figure 15 showing no change in wetted area on the receding limb of the overtopping flows.

4. REFERENCES

California Department of Water Resources (DWR). 2017a. *Yolo Bypass Salmonid Habitat Restoration and Fish Passage Hydrodynamic Modeling Report*. June. Prepared by HDR and cbec.

California Department of Water Resources (DWR). 2017b. *Yolo Bypass Salmonid Habitat Restoration and Fish Passage Inundation Analysis for EIS/EIR Alternatives*. May. Prepared by HDR and cbec.

5. FIGURES

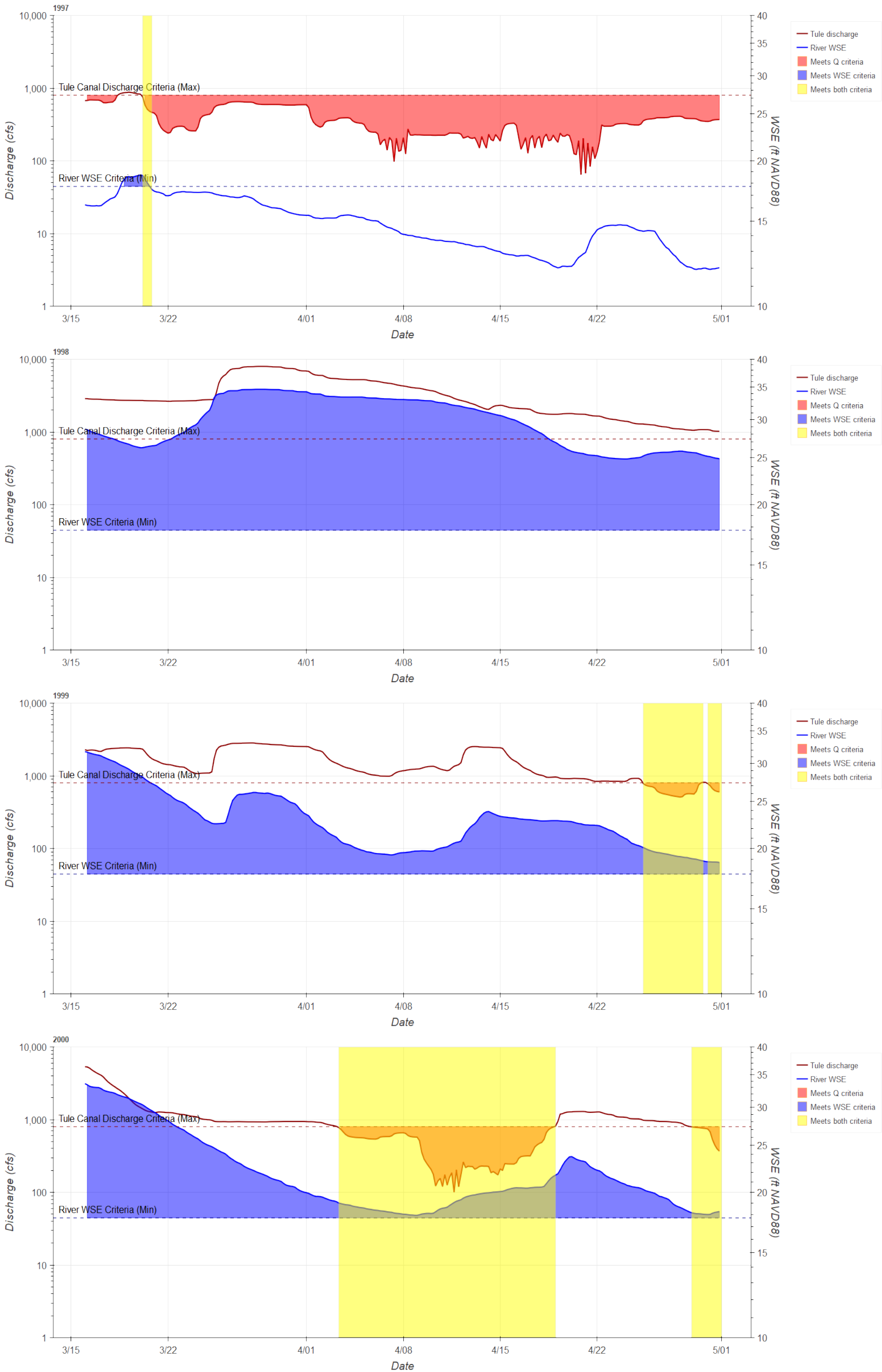
Figure	Primary Title	Secondary Title
1	Fish Passage Opportunities Post March 15 th	Water Years 1997 to 2000
2	Fish Passage Opportunities Post March 15 th	Water Years 2001 to 2004
3	Fish Passage Opportunities Post March 15 th	Water Years 2005 to 2008
4	Fish Passage Opportunities Post March 15 th	Water Years 2009 to 2012
5	Change in Last Day Wet Nov 1st to March 15th	Alternative 1 -- Max 1000 cfs -- Water Year 2002
6	Change in Last Day Wet Nov 1st to March 15th	Alternative 1 -- Max 1000 cfs -- Water Year 2004
7	Change in Last Day Wet Nov 1st to March 15th	Alternative 1 -- Max 1000 cfs -- Water Year 2006
8	Change in Last Day Wet Nov 1st to March 15th	Alternative 1 -- Max 2000 cfs -- Water Year 2002
9	Change in Last Day Wet Nov 1st to March 15th	Alternative 1 -- Max 2000 cfs -- Water Year 2004
10	Change in Last Day Wet Nov 1st to March 15th	Alternative 1 -- Max 2000 cfs -- Water Year 2006
11	Change in Last Day Wet Nov 1st to March 15th	Alternative 1 -- Max 3000 cfs -- Water Year 2002
12	Change in Last Day Wet Nov 1st to March 15th	Alternative 1 -- Max 3000 cfs -- Water Year 2004
13	Change in Last Day Wet Nov 1st to March 15th	Alternative 1 -- Max 3000 cfs -- Water Year 2006
14	Wetted Area Comparison Nov 1st to March 15th	Alternative 1 -- Reduced Inflows

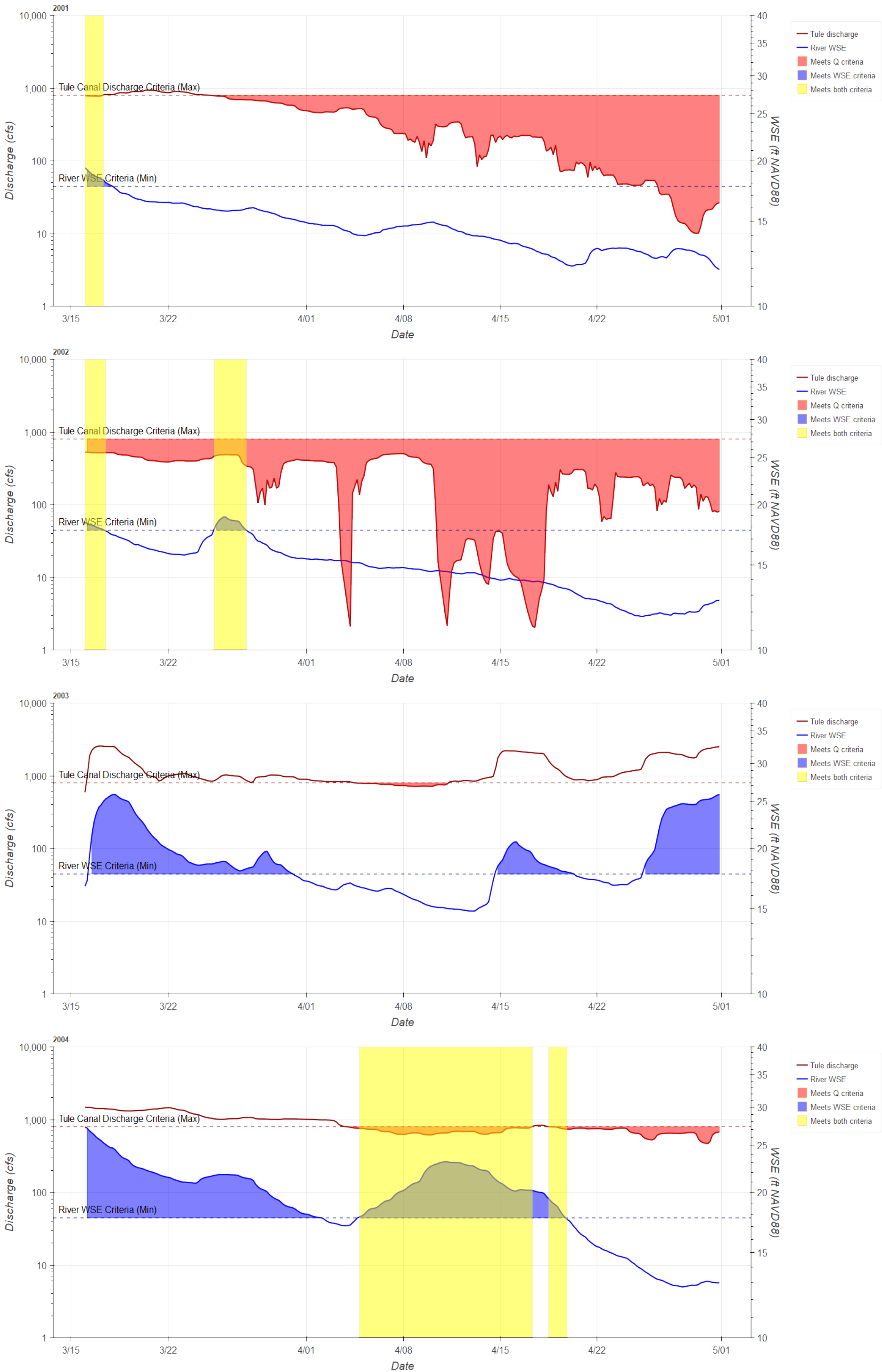
APPENDIX A

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Appendix S
Attachment

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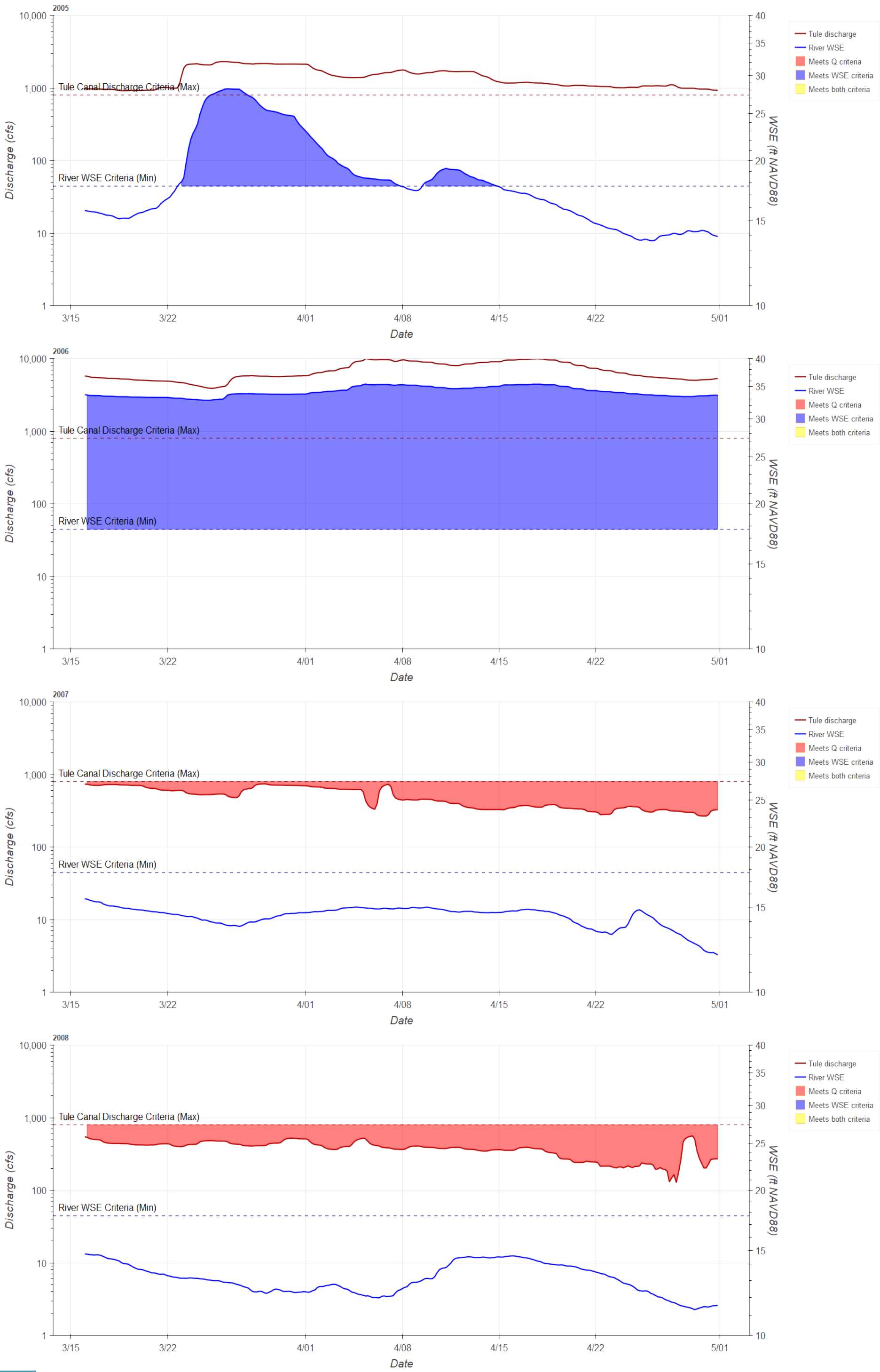




FISH PASSAGE OPPORTUNITIES POST MARCH 15TH

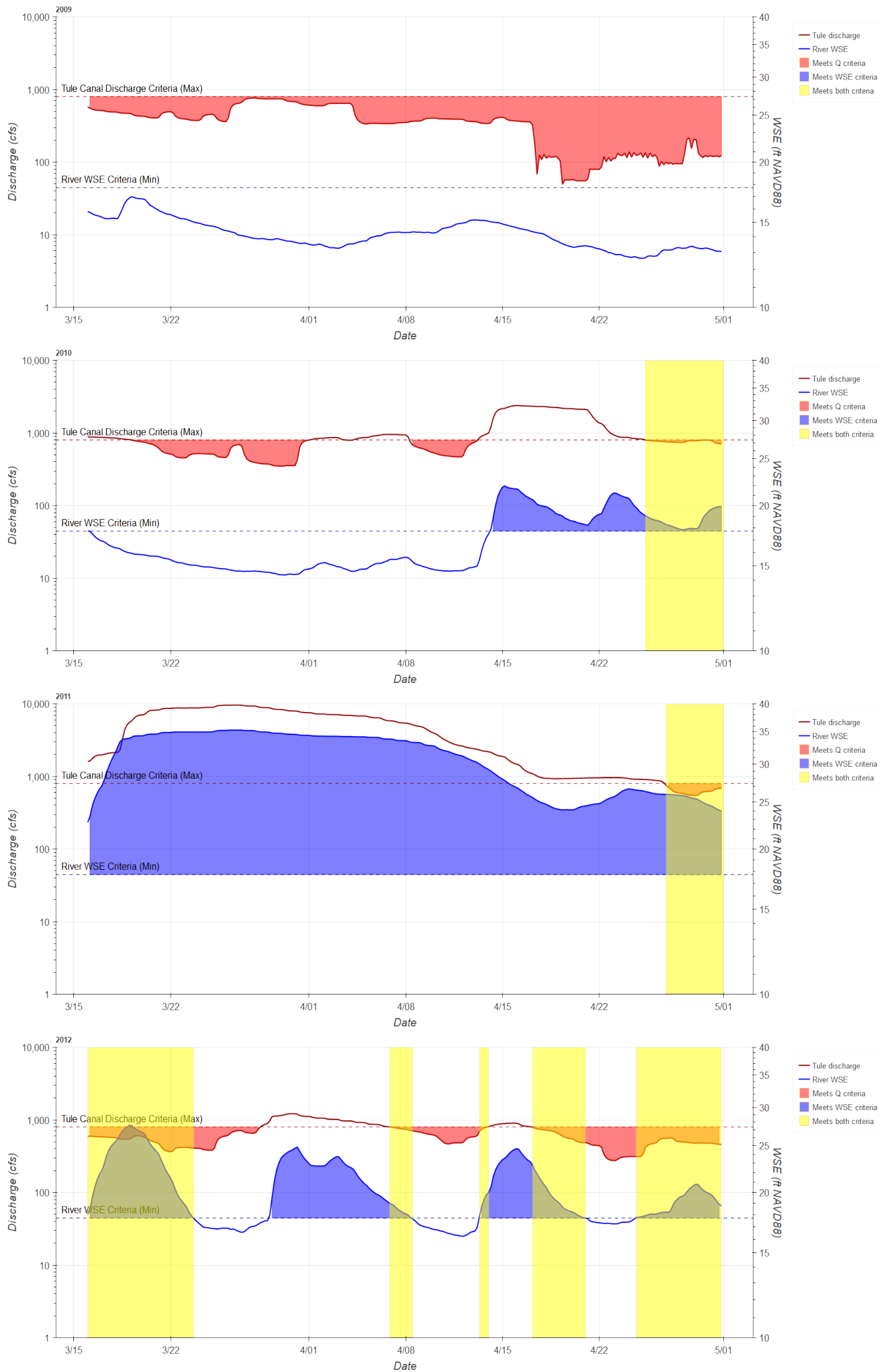
WATER YEARS 2001 TO 2004

FIGURE 2



FISH PASSAGE OPPORTUNITIES POST MARCH 15TH
WATER YEARS 2005 TO 2008

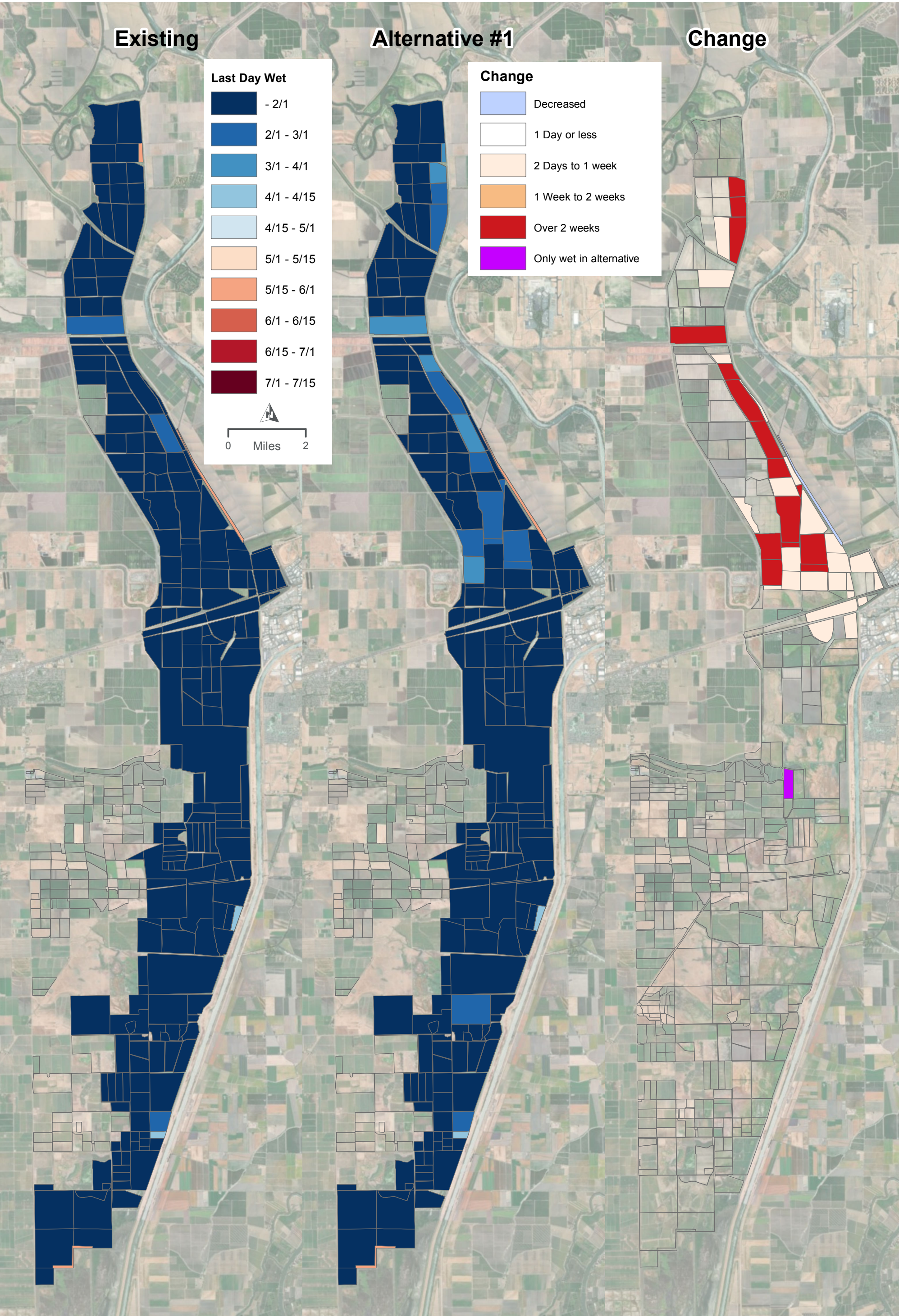
FIGURE 3



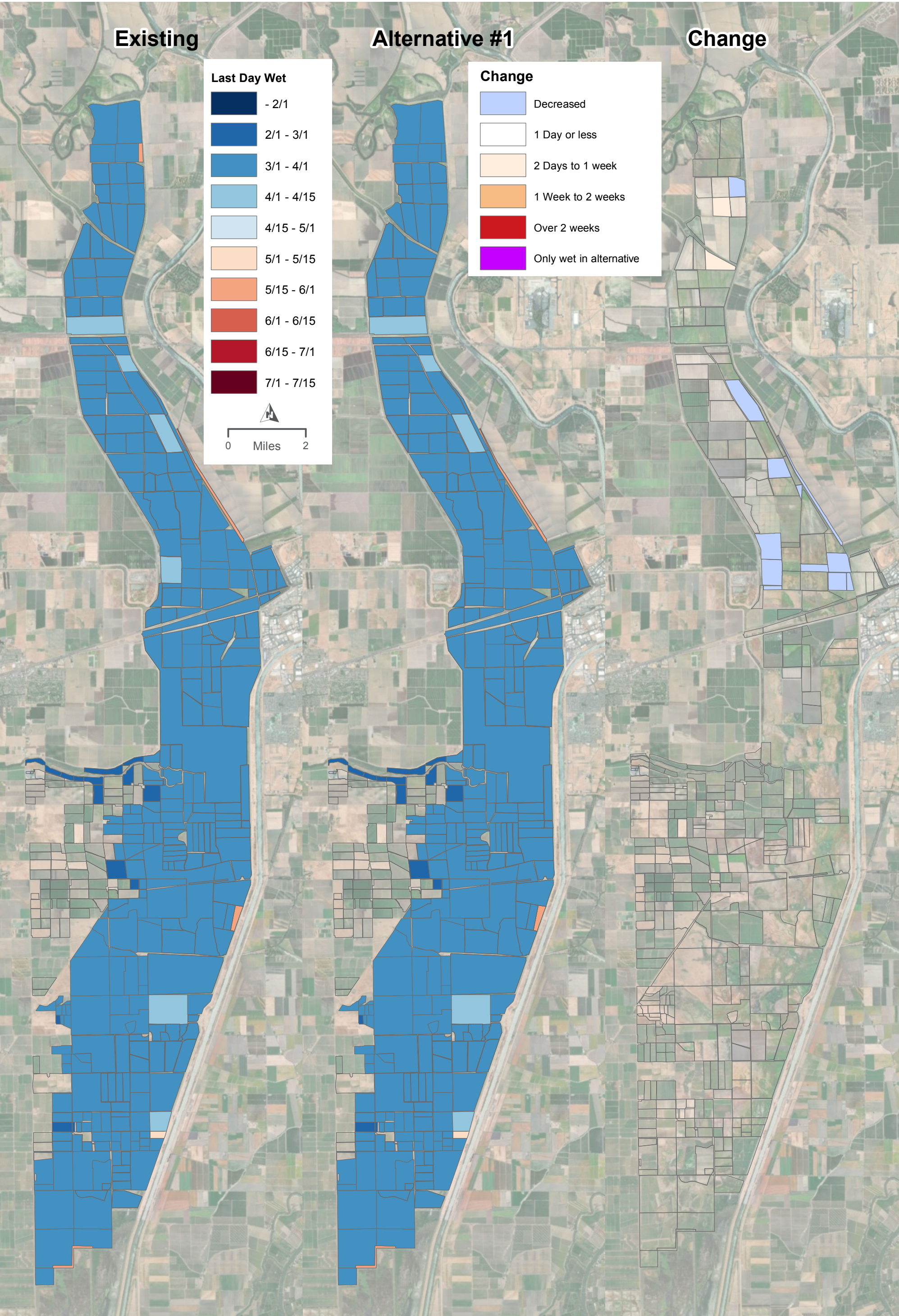
FISH PASSAGE OPPORTUNITIES POST MARCH 15TH

WATER YEARS 2009 TO 2012

FIGURE 4



CHANGE IN LAST DAY WET NOV 1ST TO MARCH 15TH
ALTERNATIVE 1 -- MAX 1000 CFS -- WATER YEAR 2002
FIGURE 5



Last Day Wet

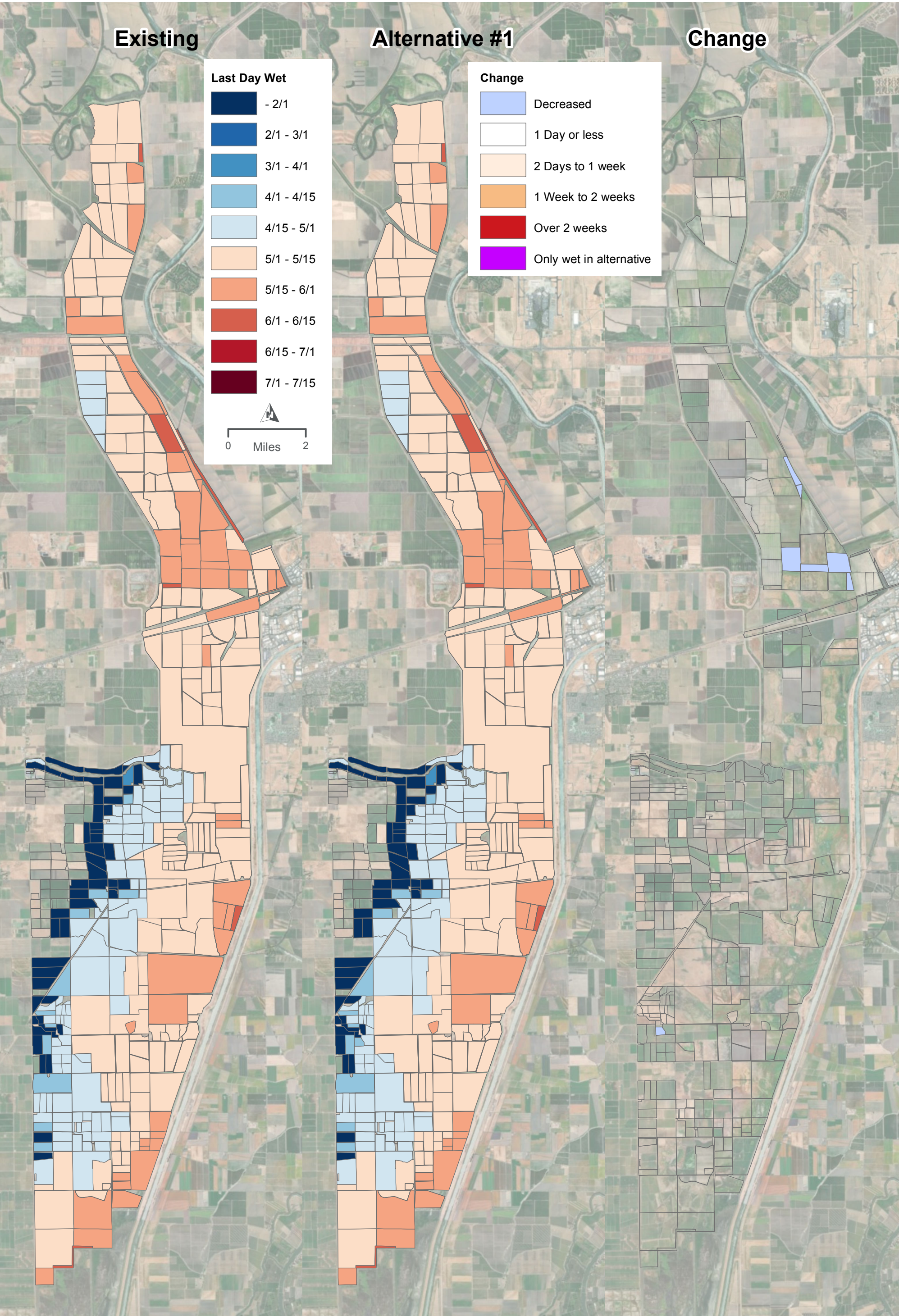
Dark Blue	- 2/1
Blue	2/1 - 3/1
Light Blue	3/1 - 4/1
Very Light Blue	4/1 - 4/15
Lightest Blue	4/15 - 5/1
Orange	5/1 - 5/15
Dark Orange	5/15 - 6/1
Red	6/1 - 6/15
Dark Red	6/15 - 7/1
Maroon	7/1 - 7/15

0 Miles 2

Change

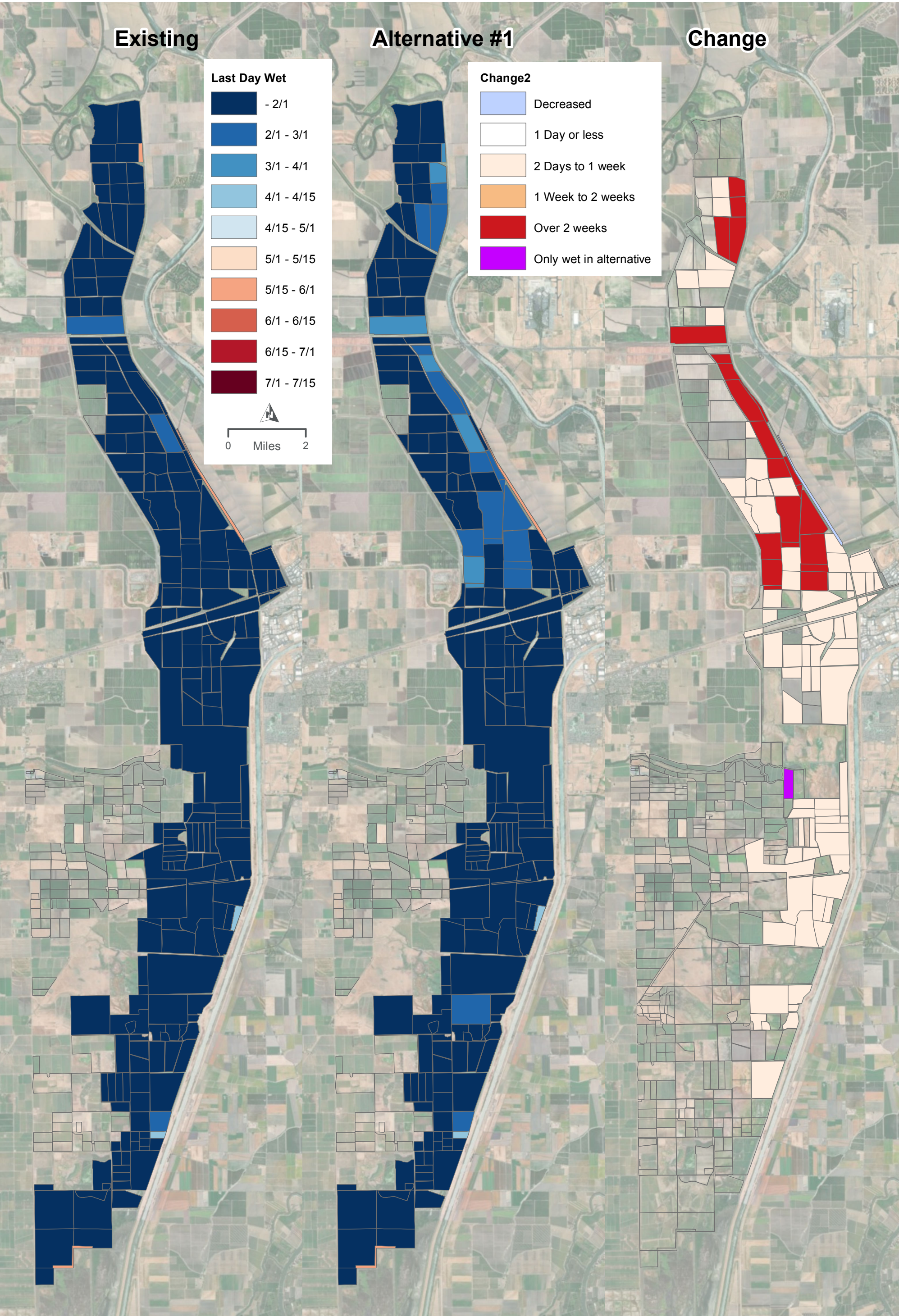
Light Blue	Decreased
White	1 Day or less
Light Orange	2 Days to 1 week
Orange	1 Week to 2 weeks
Red	Over 2 weeks
Purple	Only wet in alternative

CHANGE IN LAST DAY WET NOV 1ST TO MARCH 15TH
ALTERNATIVE 1 -- MAX 1000 CFS -- WATER YEAR 2004
FIGURE 6

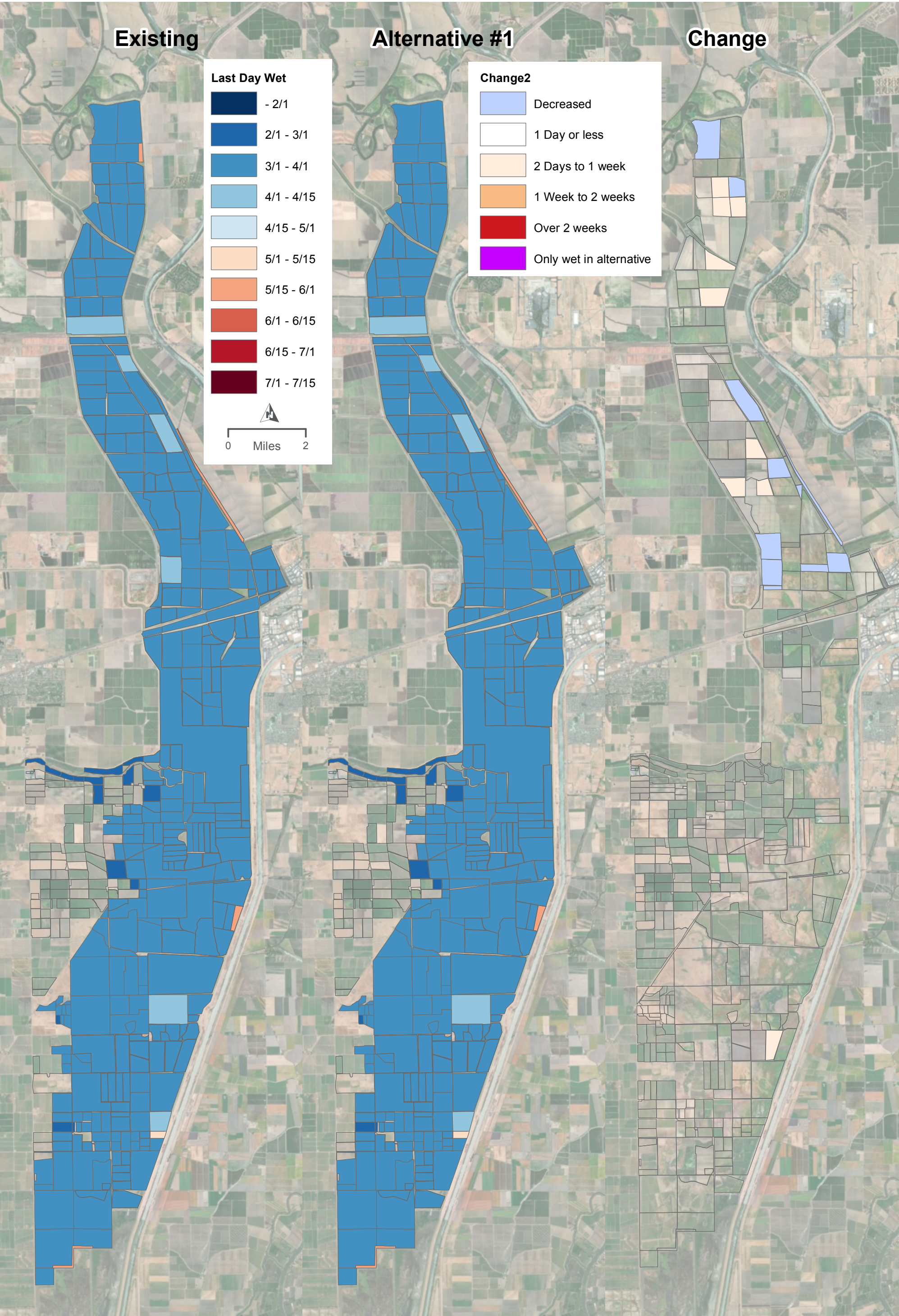


CHANGE IN LAST DAY WET NOV 1ST TO MARCH 15TH
ALTERNATIVE 1 -- MAX 1000 CFS -- WATER YEAR 2006

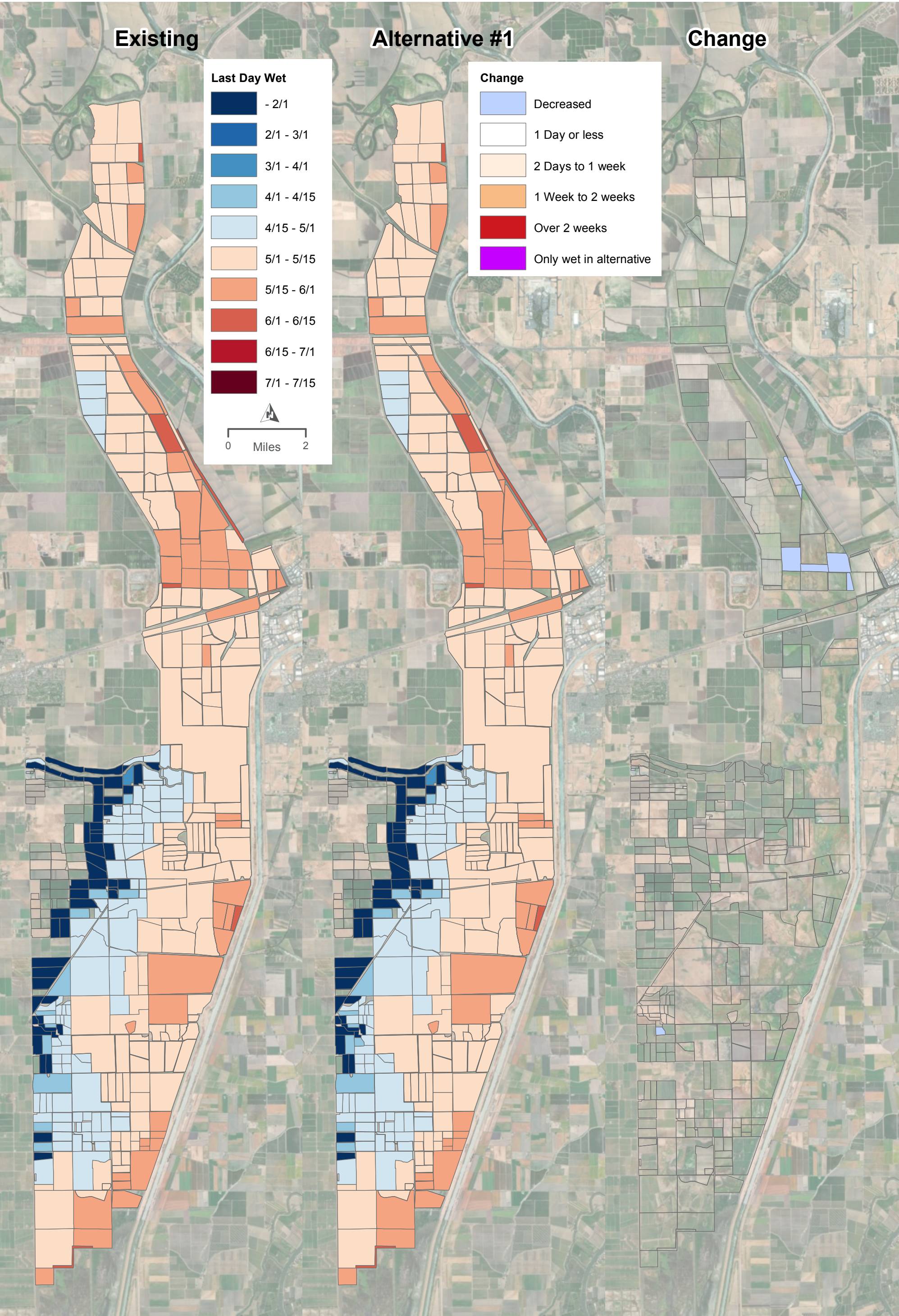
FIGURE 7



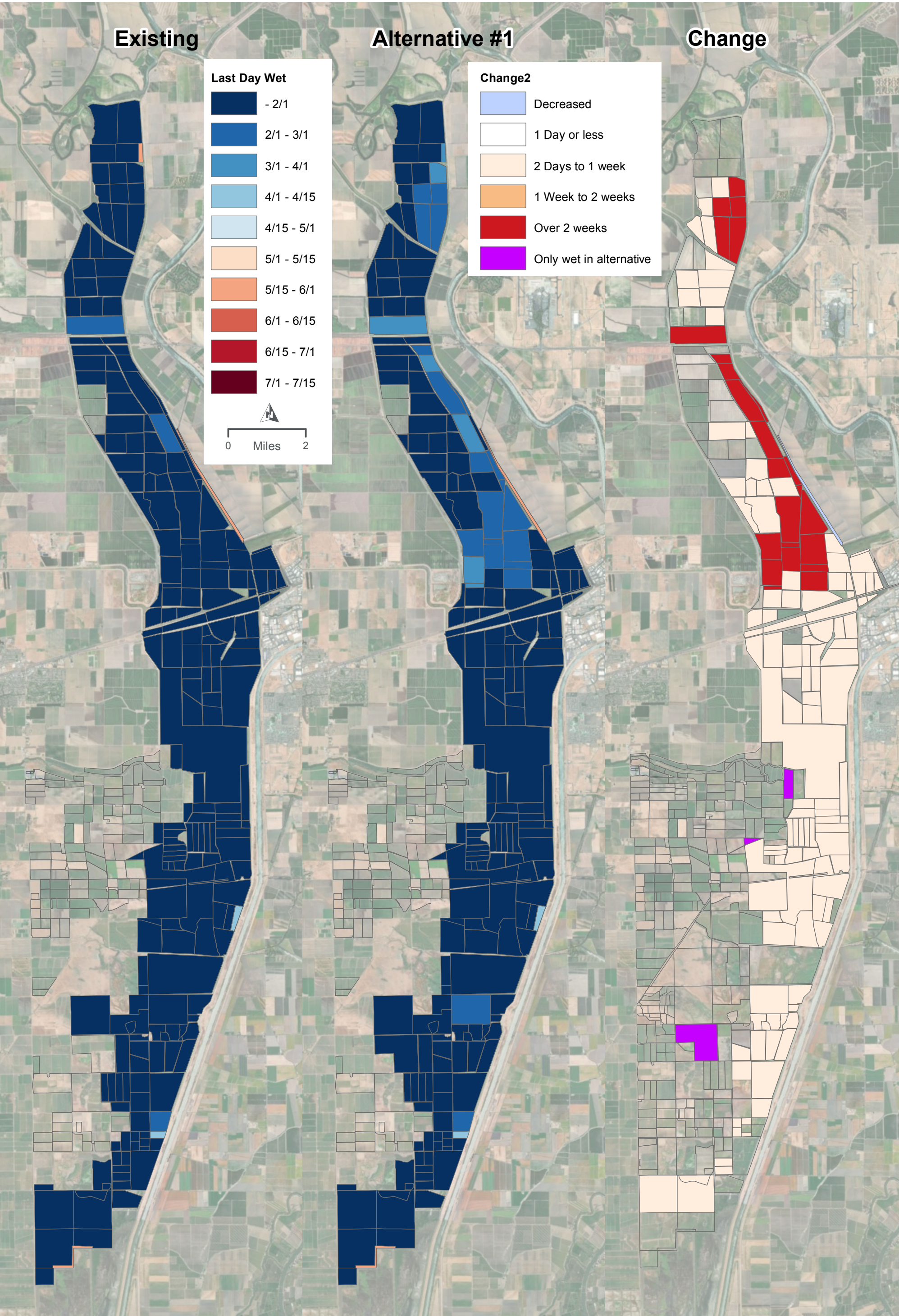
CHANGE IN LAST DAY WET NOV 1ST TO MARCH 15TH
ALTERNATIVE 1 -- MAX 2000 CFS -- WATER YEAR 2002
FIGURE 8



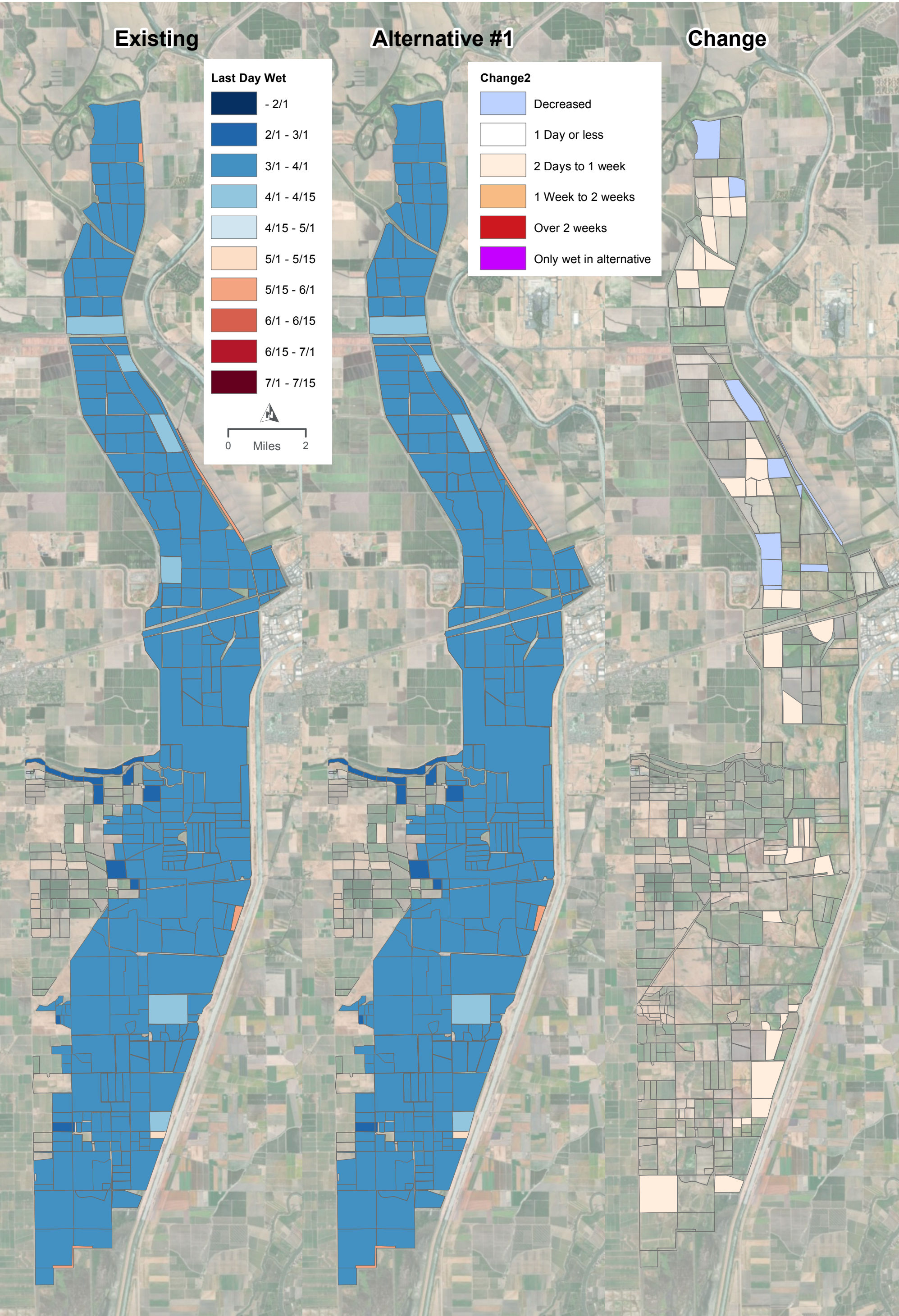
CHANGE IN LAST DAY WET NOV 1ST TO MARCH 15TH
ALTERNATIVE 1 -- MAX 2000 CFS -- WATER YEAR 2004
FIGURE 9



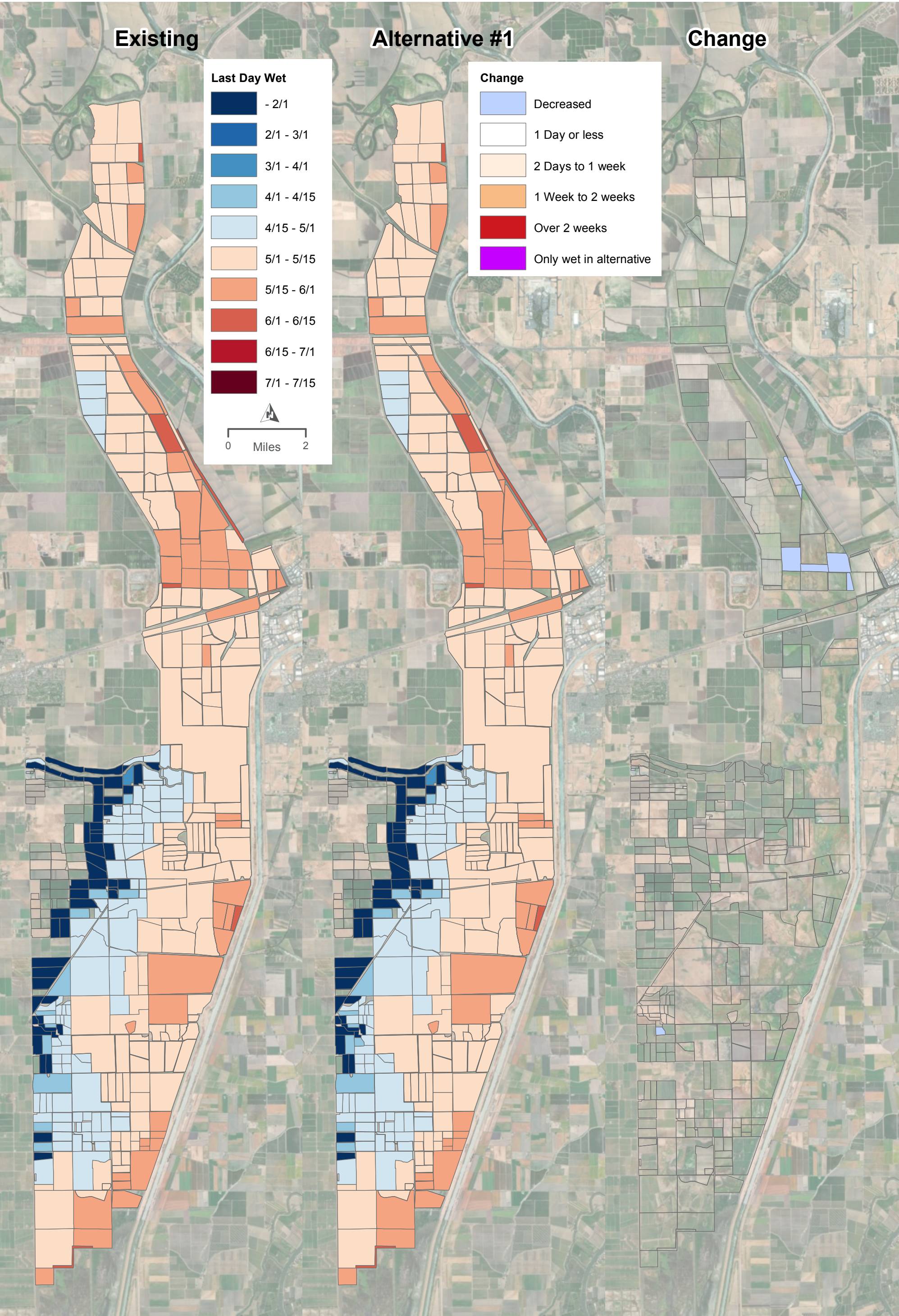
CHANGE IN LAST DAY WET NOV 1ST TO MARCH 15TH
ALTERNATIVE 1 -- MAX 2000 CFS -- WATER YEAR 2006
FIGURE 10



CHANGE IN LAST DAY WET NOV 1ST TO MARCH 15TH
ALTERNATIVE 1 -- MAX 3000 CFS -- WATER YEAR 2002
FIGURE 11

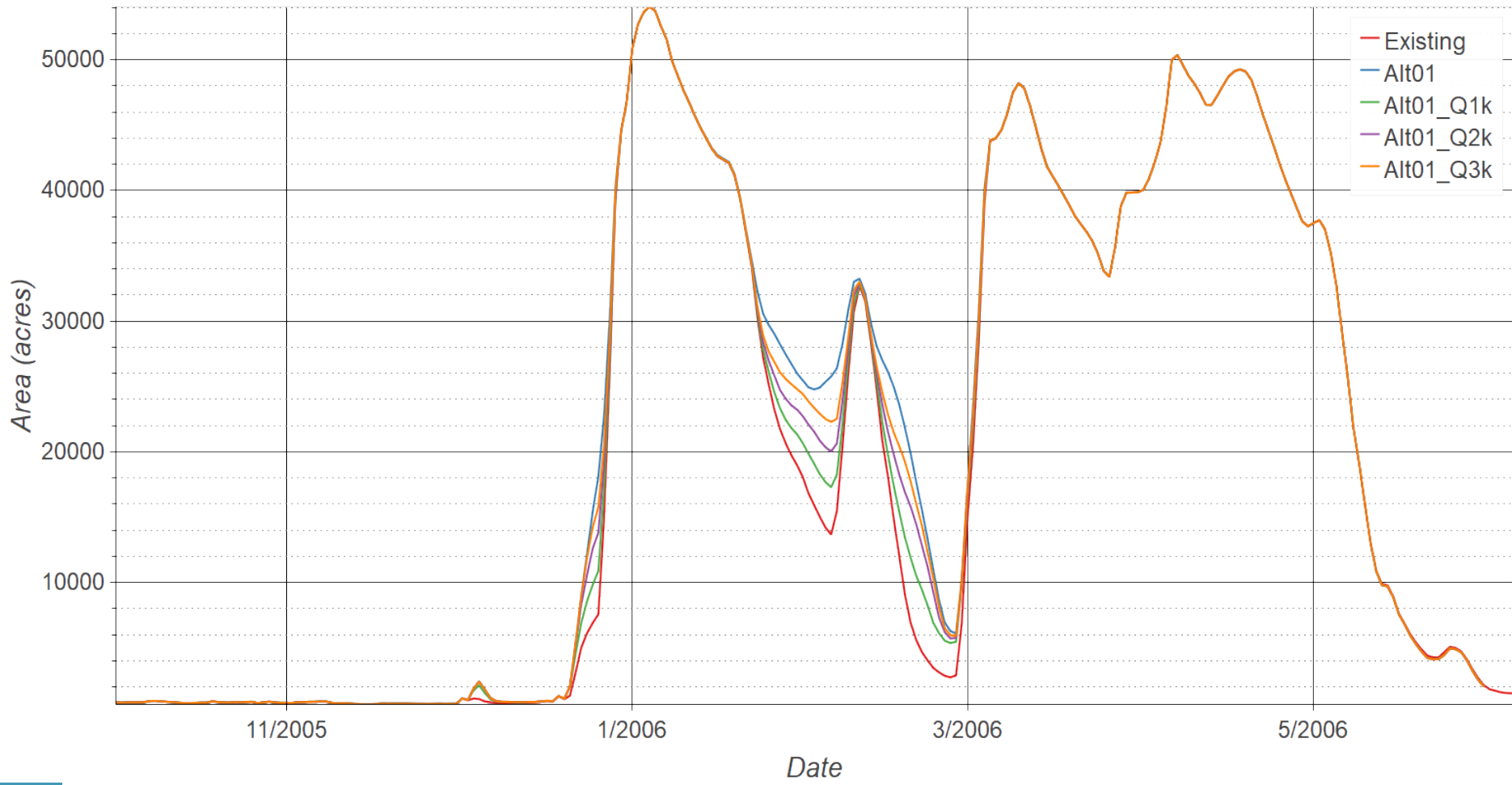
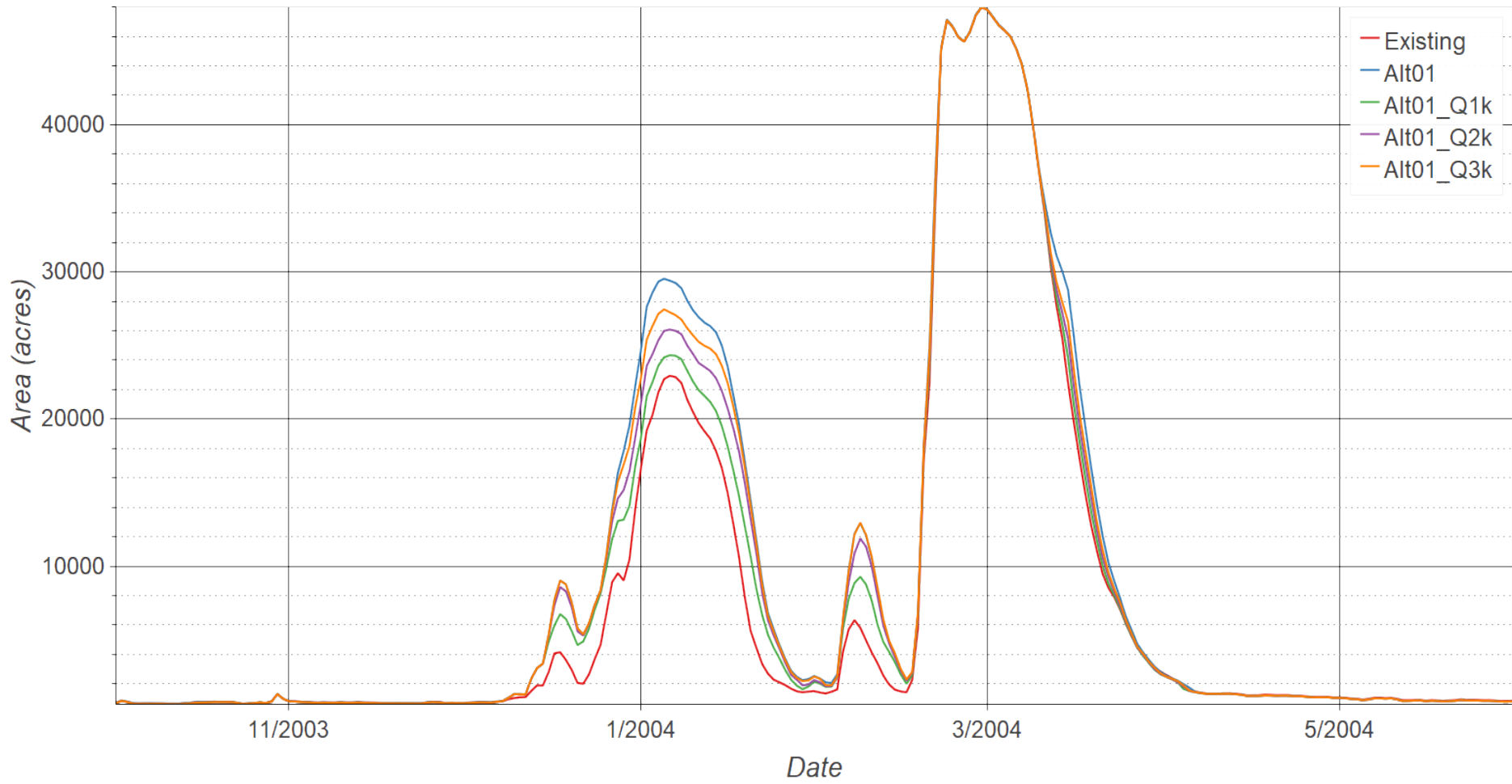
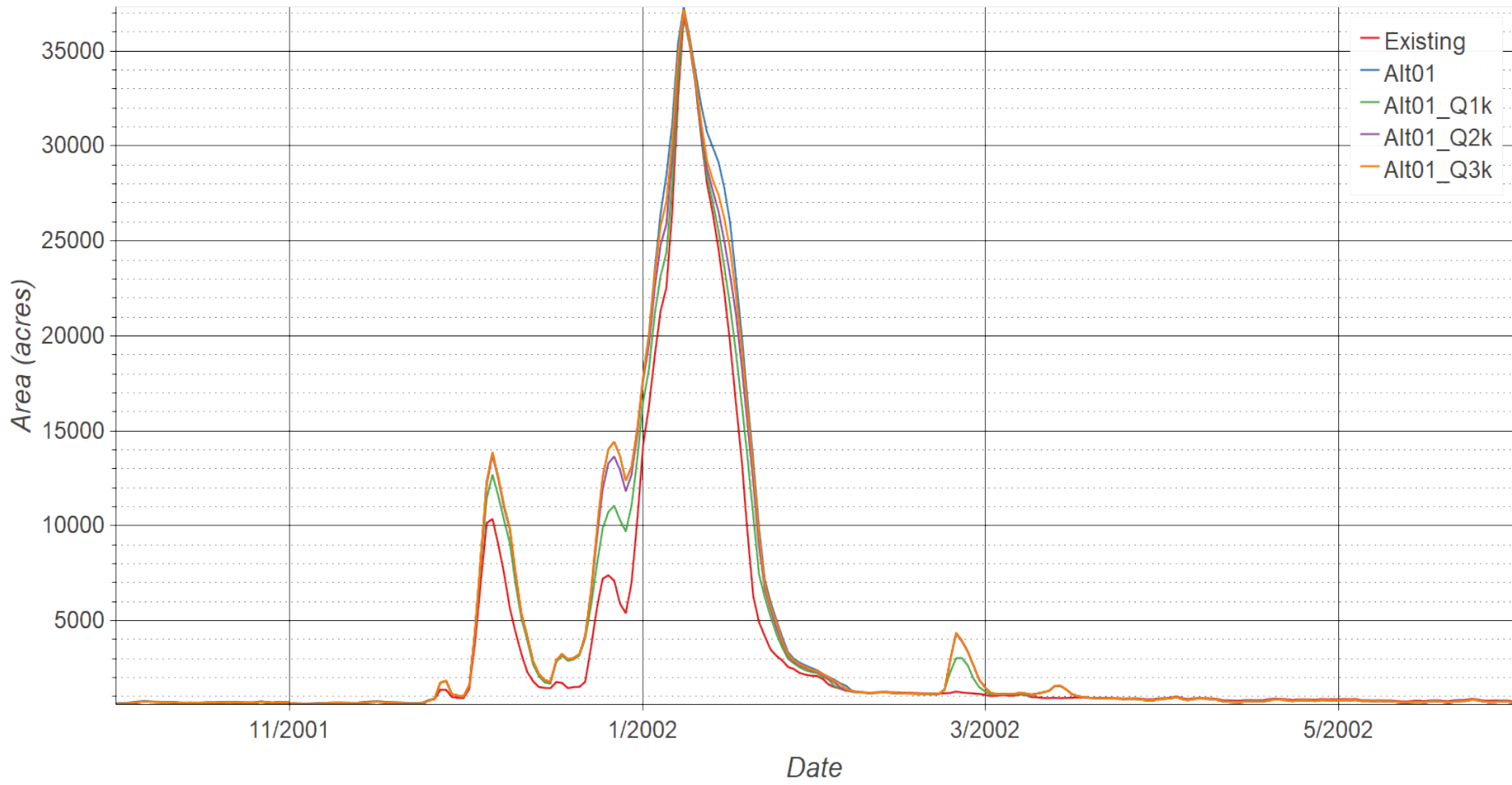


CHANGE IN LAST DAY WET NOV 1ST TO MARCH 15TH
ALTERNATIVE 1 -- MAX 3000 CFS -- WATER YEAR 2004
FIGURE 12



CHANGE IN LAST DAY WET NOV 1ST TO MARCH 15TH
ALTERNATIVE 1 -- MAX 3000 CFS -- WATER YEAR 2006

FIGURE 13



WETTED AREA COMPARISON NOV 1ST TO MARCH 15TH
ALTERNATIVE 1 -- REDUCED INFLOWS

FIGURE 14

Appendix T. Evaluation of Underseepage Based on Water Surface Elevation Changes

This technical memorandum evaluates the potential for seepage, particularly underseepage, in the Yolo Bypass for the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project (Project) alternatives. Increased water surface elevations (WSE) could increase the risk of underseepage. This potential increase in underseepage was evaluated by analyzing exceedance plots for change in WSE between existing conditions and each Project alternative. Additionally, WSE changes between existing conditions and Alternative 1 Figures 2 -20 show three flow conditions to illustrate temporal changes in WSE. The analysis was limited to the Upper Elkhorn Basin, which is located between the Yolo Bypass and the Sacramento River north of I-80, because increases to WSE will be greater in the northern Yolo Bypass.

Seepage is a slow movement of water through permeable soils caused by increases in the hydraulic head. There are two types of seepage:

- *Through-seepage: seepage through the levee embankment.* Through-seepage in an embankment emerging on the landside slope can soften fine grained fill in the vicinity of the landside toe, cause sloughing of the slope, or even lead to piping (internal erosion) of fine sand or silt materials. Seepage exiting on the landside slope would also result in high seepage forces, decreasing the stability of the slope. Through-seepage occurs when water from the river passes through a pervious levee and weakens the interior of the existing levee causing internal erosion leading to slope instability or movement of embankment material.
- *Underseepage: seepage beneath the levee embankment through foundation layers.* Underseepage problems are most acute where a pervious substratum underlies a levee and extends both landward and riverward of the levee and where a relatively thin top stratum exists on the landside of the levee. Underseepage in pervious foundations beneath levees may result in:
 - excessive hydrostatic pressures beneath an impervious top stratum on the side,
 - sand boils, and
 - piping beneath the levee itself.

Appendix T. Seepage Water Surface Differential Analysis

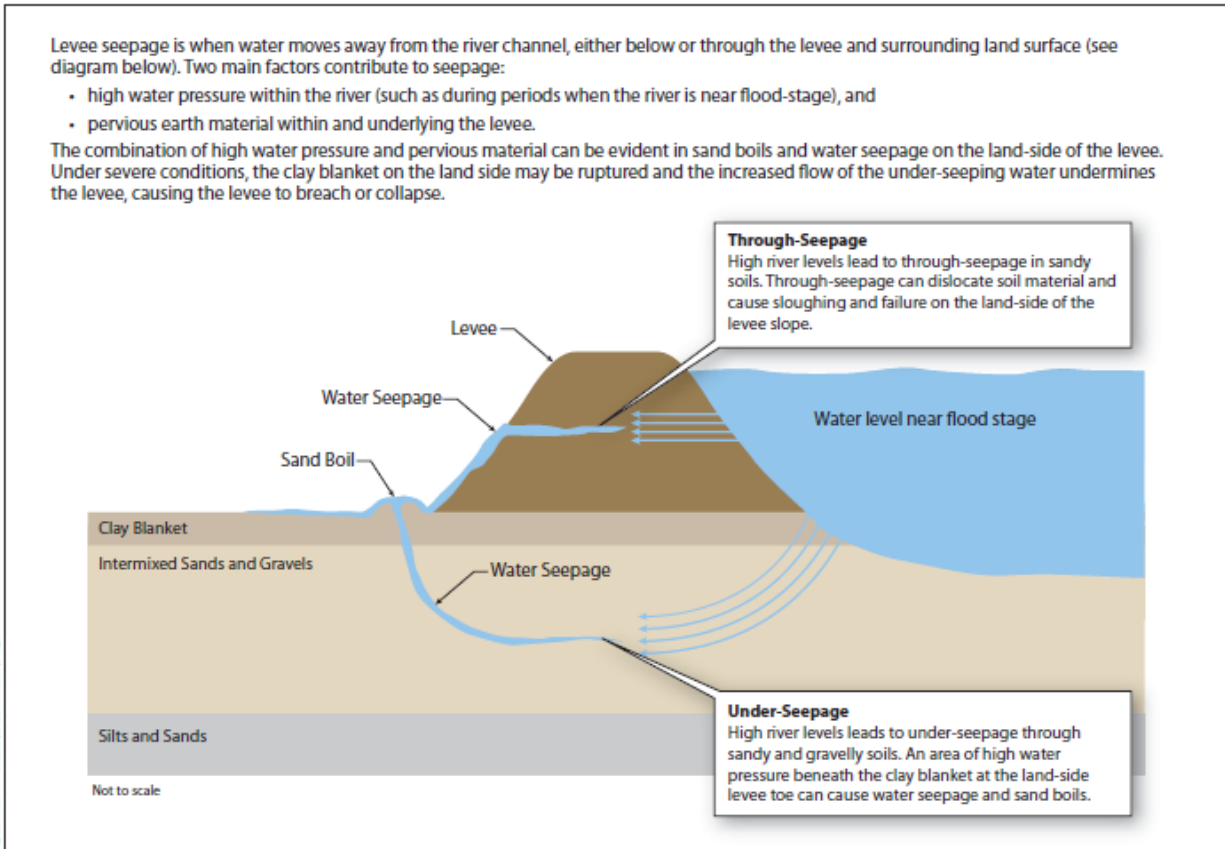


Figure 1a - Seepage Diagram (from USACE Southport Levee Improvement Project)

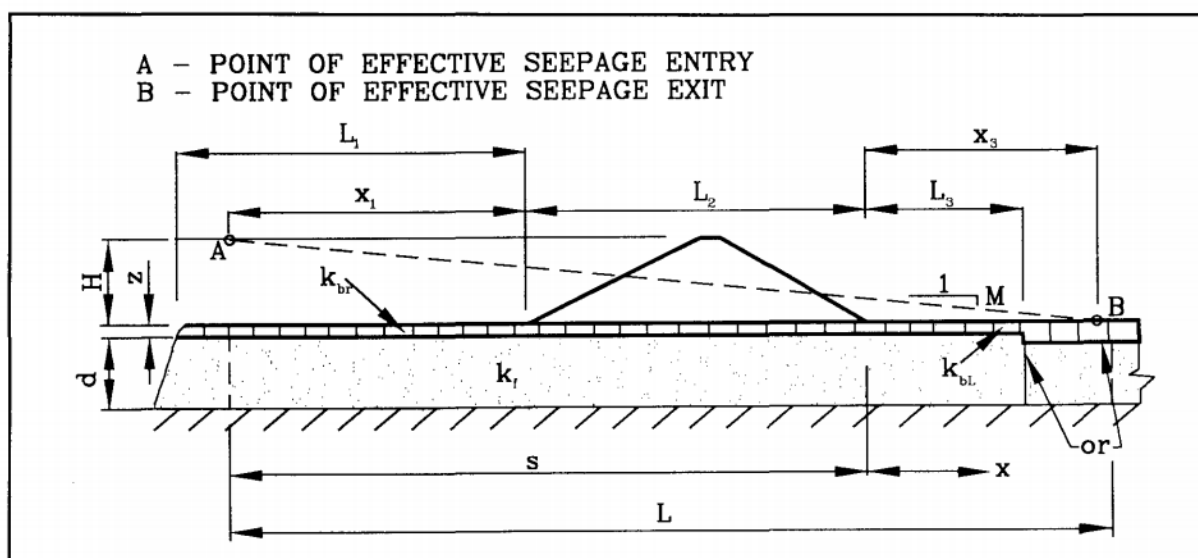
Appendix B of the United States Army Corps Engineers (USACE) Engineer Manual 1110-2-1913 lists 24 factors that would influence underseepage (USACE 2000). Table T-1 and Figure T-1 present the factors that would influence underseepage.

Table T-1. Factors that would Influence Underseepage

Factor	Definition
H	Net head on levee
M	Slope of hydraulic grade line (at mid depth of pervious stratum) beneath levee
i c	Critical gradient for landside top stratum
L1	Distance from river to riverside levee toe
L2	Base width of levee and berm
L3	Length of foundation and top stratum beyond landside levee toe
L	Distance from effective seepage entry to effective seepage exit
s	Distance from effective seepage entry to landside toe of levee or berm
X1	Distance from effective seepage entry to riverside levee toe
X	Distance from landside levee toe to effective seepage exit 3
d	Thickness of pervious substratum
z	Thickness of top stratum
zb	Transformed thickness of top stratum

Table T-1. Factors that would Influence Underseepage

Factor	Definition
zbl	Transformed thickness of landside top stratum
zbr	Transformed thickness of riverside top stratum
z n	Thickness of individual layers comprising top stratum (n = layer number)
zt	Transformed thickness of landside top stratum for uplift computation
kb	Vertical permeability of top stratum
kb	Vertical permeability of landside top stratum
kbr	Vertical permeability of riverside top stratum
kf	Horizontal permeability of pervious substratum
k n	Vertical permeability of individual layers comprising top stratum (n = layer number)
Qs	Total amount of seepage passing beneath the levee
ho	Head beneath top stratum at landside levee toe
hx	Head beneath top stratum at distance x from landside levee toe



Source: USACE 2000

Figure T-1b. Illustration of symbols used in Table T-1

Since the Project proposes to construct a cut-off wall adjacent to the levee where channels are proposed, or existing channels are proposed to be deepened, all other factors influencing underseepage would be the same as existing conditions except the net head on the levee. Therefore, evaluating the changes WSE to determine the potential to increase the risk of seepage is appropriate.

Exceedance plots for the Project alternatives for the entire 16 water years during the period of November 1 to March 15th were analyzed at three locations along Tule Canal. Figure T-21 shows the locations where WSEs were extracted from the TUFLOW model and Table 3 includes the WSE changes for those locations. Location Tule_354 is located closest to the Fremont weir. Table 3, for Alternatives 1,2,3, Alternative 4, Alternative 5 and Alternative 6, show that there is improved drainage at this location approximately 50%, 30%, 45%, and 40% of the time respectively as a result of improvements to downstream agricultural road crossings. Alternative 4 has the greatest increase in WSE compared to the other alternatives. The water control structures proposed in Alternative 4 block water in the Tule Canal and cause a greater increase in WSE. Alternatives 1, 2, 3, 5, and 6 generally have a 30% to 50% increase of 0 feet to 3 feet at the cross-sections analyzed. However, a closer look at Figures 21 – 33, shows that these increases in WSE are occurring at relatively low flows and elevations when the risk of underseepage is low due to minimal head pressure. During peak flows, when water is higher adjacent to the levee and when you expect the greatest pressure to cause underseepage, there is negligible change in WSE.

Table 3 - Changes in WSEs Exceedance

	Alts 1-3	Alt 4	Alt 5	Alt 6
Tule 354				
-3 ft. to 0 ft.	50%	30%	45%	40%
0 ft. to 3 ft.	30%	-	30%	
0 ft. to 5 ft.	-	60%	-	50%
Tule 365				
-3 ft. to 0 ft.	-	-	-	-
0 ft. to 3 ft.	45%	-	50%	50%
0 ft. to 5 ft.	-	65%	-	-
Tule 0				
-3 ft. to 0 ft.	-	-	-	-
0 ft. to 3 ft.	50	-	50%	50%
0 ft. to 5 ft.	-	60%	-	-

To illustrate the temporal changes in WSE a more detailed evaluation was performed between existing conditions and Alternative 1 for three flow scenarios and at five cross-sections. As shown in Figure T-2, the five cross-sections extend across the Upper Elkhorn Basin and represent conditions across the basin. As discussed previously, the Upper Elkhorn Basin lies between the Yolo Bypass and the Sacramento River. Therefore, groundwater levels in the Upper Elkhorn Basin would be influenced by underseepage on the western side of the basin due to change in head in the Yolo Bypass and by underseepage on the eastern side of the basin due to change in head in the Sacramento River. In this analysis three flow scenarios at Fremont Weir were evaluated:

- High flow scenario (Flow at Fremont Weir ~ 290,000 cubic feet per second [cfs], 1997 Water Year)
- Moderate flow scenario (Flow at Fremont Weir ~ 80,000 cfs, 2004 Water Year)
- Low flow scenario (Flow at Fremont Weir ~ 0 cfs, 2001 Water Year)

Under the three flow scenarios, WSEs were extracted from TUFLOW hydraulic model in the Yolo Bypass and the Sacramento River. WSEs were extracted under the existing conditions and Alternative 1 along the five cross-sections shown in Figure T-2. These extracted WSE were used to estimate the change in net head due to Alternative 1 (i.e., WSE under Alternative 1 minus WSE under existing conditions). Table T-2 provides the WSEs and change in head at the five cross-sections in the Yolo Bypass and Sacramento River.

Figure T-3 shows the flows at Fremont Weir under existing conditions and Alternative 1 in the high flow scenario. Figures T-4 through T-8 shows water surface profiles comparison at the five cross-sections under the high flow scenario.

Figure T-9 shows the flows at Fremont Weir under existing conditions and Alternative 1 in the medium flow scenario. Figures T-10 through T-14 shows water surface profiles comparison at the five cross-sections under the medium flow scenario.

Figure T-15 shows the flows at Fremont Weir under existing conditions and Alternative 1 in the low flow scenario. Figures T-16 through T-20 shows water surface profiles comparison at the five cross-sections under the low flow scenario.

Table T-2 : Change in Net Head in the Yolo Bypass and Sacramento River under Three Flow Scenarios

Cross-Section	Date	Yolo Bypass		Sacramento River		Change in head (WSE Alternative 1 minus Existing Conditions)	
		Existing conditions	Alternative 1	Existing conditions	Alternative 1	Yolo Bypass	Sacramento River
1. High flow scenario (Flow at Fremont weir ~ 290,000 cfs)							
XS-1	1/5/97	38.37	38.37	38.94	38.87	0.00	-0.07
XS-2		36.06	36.07	38.17	38.10	0.01	-0.07
XS-3		35.37	35.38	36.69	36.62	0.01	-0.07
XS-4		34.72	34.74	36.15	36.08	0.02	-0.07
XS-5		33.90	33.91	35.63	35.57	0.01	-0.06
2. Moderate flow scenario (Flow at Fremont weir ~ 80,000 cfs)							
XS-1	2/29/2004	31.87	31.83	33.35	33.22	-0.04	-0.13
XS-2		29.90	29.98	32.71	32.58	0.08	-0.13
XS-3		29.63	29.65	31.49	31.38	0.02	-0.11
XS-4		29.34	29.35	31.05	30.93	0.01	-0.12
XS-5		28.87	28.80	30.64	30.52	-0.07	-0.12
3. Low flow scenario (Flow at Fremont weir ~ 0 cfs)							
XS-1	3/8/2001	21.01	23.79	23.10	21.94	2.78	-1.16
XS-2		21.01	22.73	22.53	21.39	1.72	-1.14
XS-3		21.00	22.60	21.44	20.32	1.60	-1.12
XS-4		20.19	22.11	21.03	19.91	1.92	-1.12

Table T-2 : Change in Net Head in the Yolo Bypass and Sacramento River under Three Flow Scenarios

Cross-Section	Date	Yolo Bypass		Sacramento River		Change in head (WSE Alternative 1 minus Existing Conditions)	
		Existing conditions	Alternative 1	Existing conditions	Alternative 1	Yolo Bypass	Sacramento River
XS-5		19.43	21.12	20.69	19.59	1.69	-1.10

Note: All the elevations are in Northern American Vertical Datum of 1988 (NAVD88)

T.1 Conclusion

The analysis indicates that for the high flow and moderate flow scenarios, the maximum change in net head would be 0.1 feet. Under the lower flow scenarios when the Yolo Bypass is flooding up and drying out, the difference in head would be up to 3 feet for Alternatives 1, 2, 3, 5, and 6 and up to 5 feet for Alternative 5. However, as shown in Figures T-16 through T-20, water levels under the low flow scenario would remain below the levee toe and would not significantly increase head pressure, leading to seepage.

T.2 References

United States Army Corps of Engineers. 2000. Engineering and Design, Design and Construction of Levees, EM 1110-2-1913. Available at:
https://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-2-1913.pdf. April 2000.

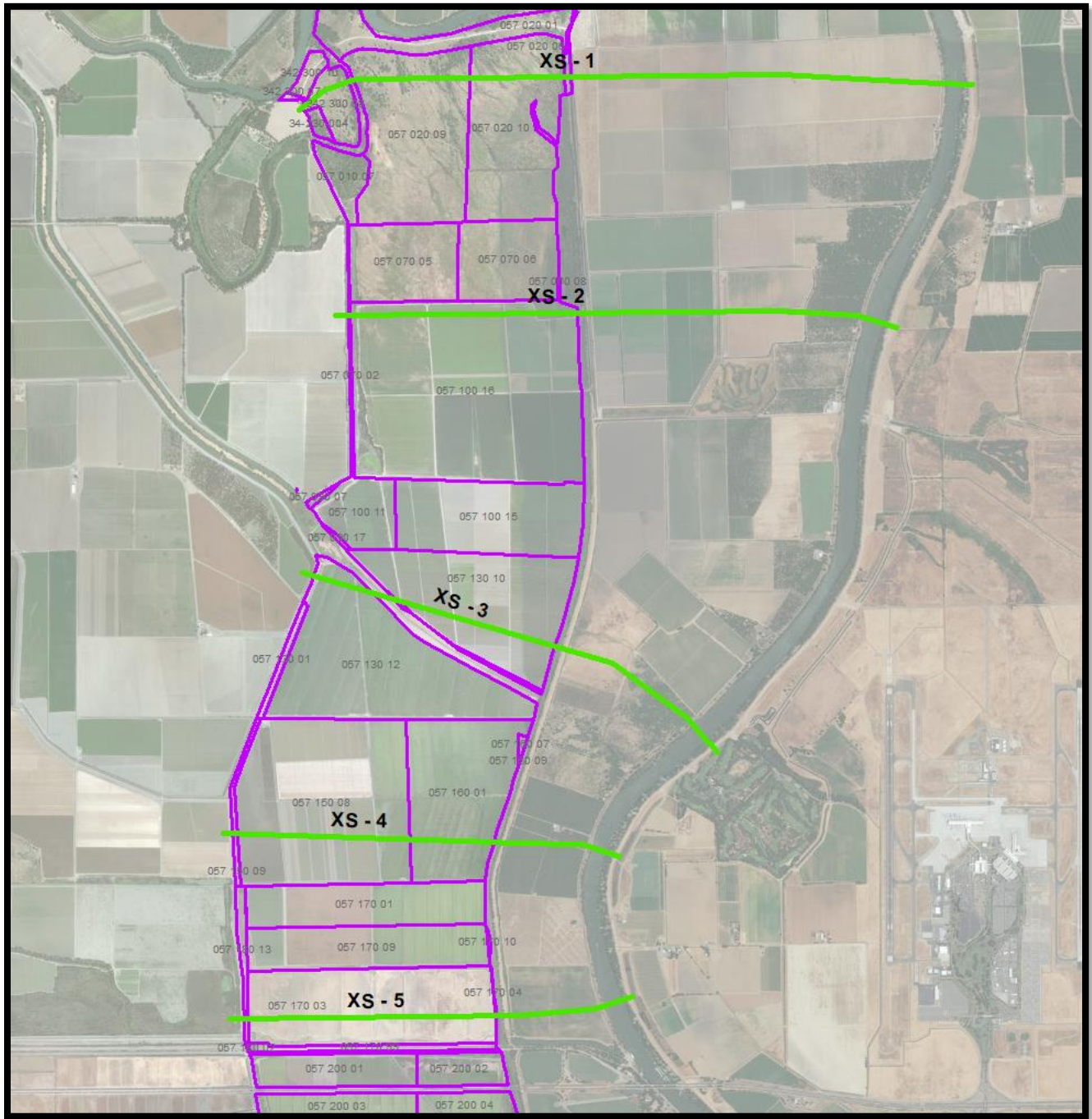


Figure T-2. Location of Cross-sections

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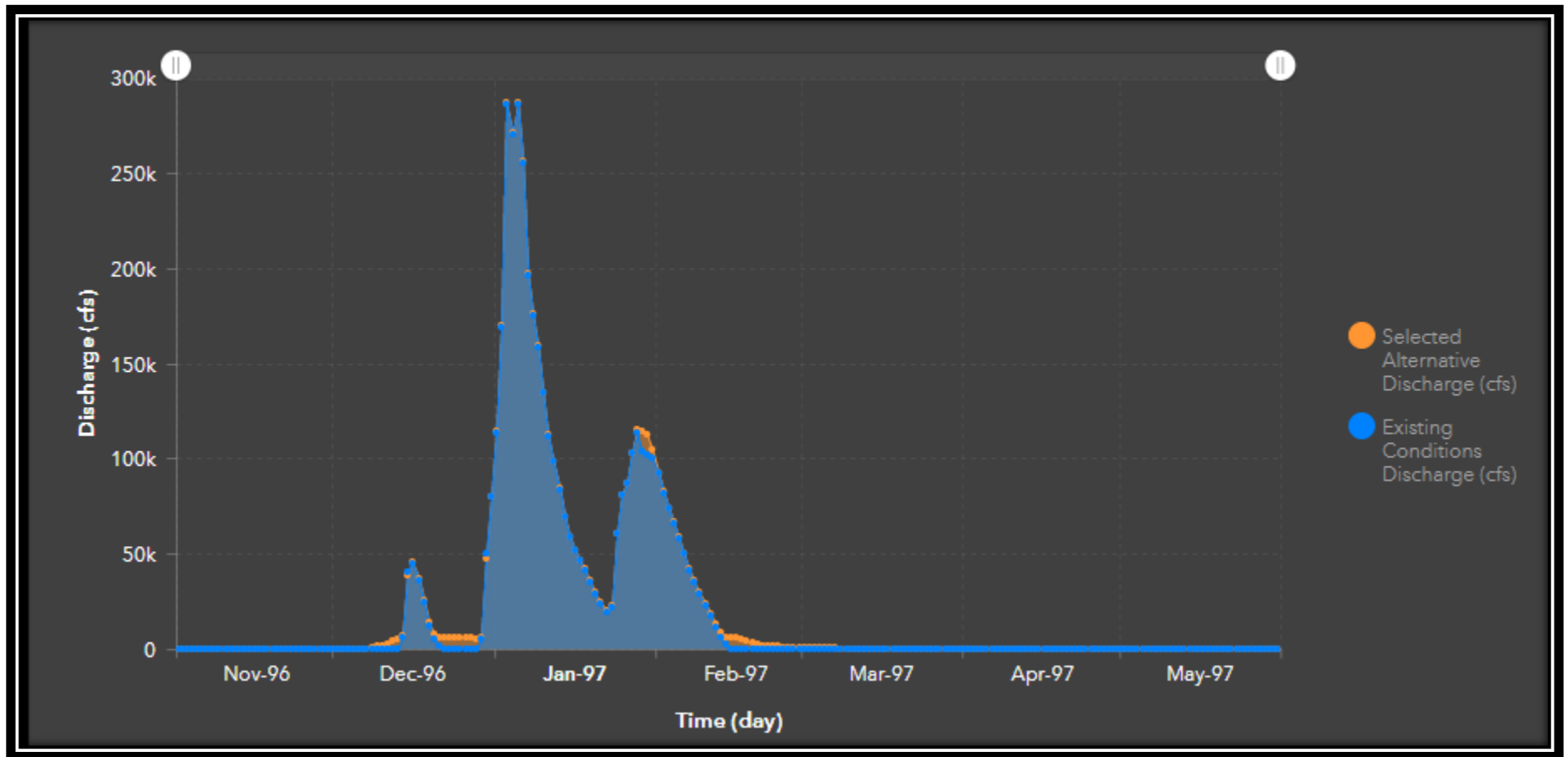


Figure T-3. Flows at Fremont Weir under Existing Conditions and Alternative 1 in the High Flow Scenario

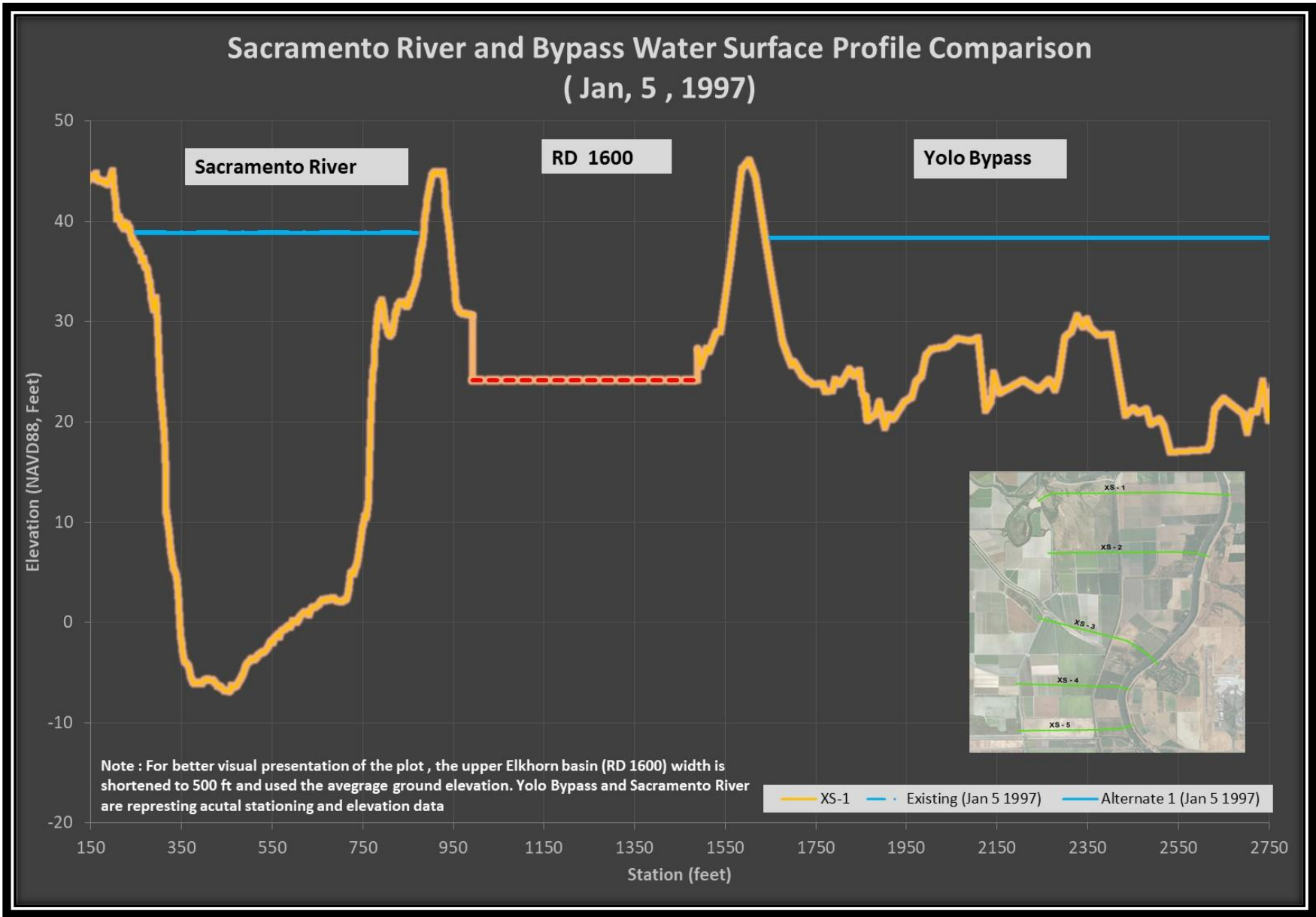


Figure T-4. Water Surface Profile Comparison Cross-section (XS) 1 Under the High Flow Scenario

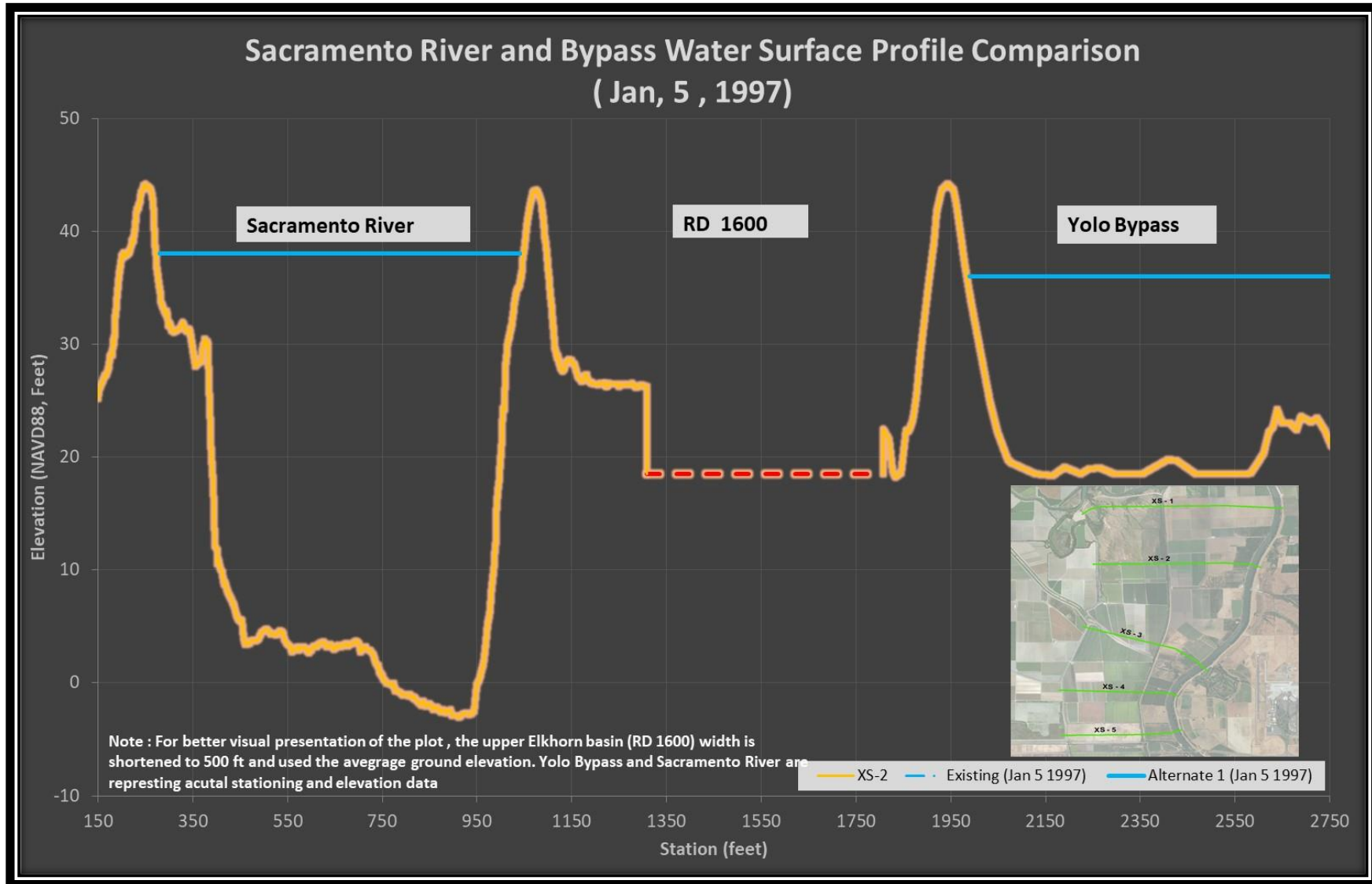


Figure T-5. Water Surface Profile Comparison Cross-section (XS) 2 Under the High Flow Scenario

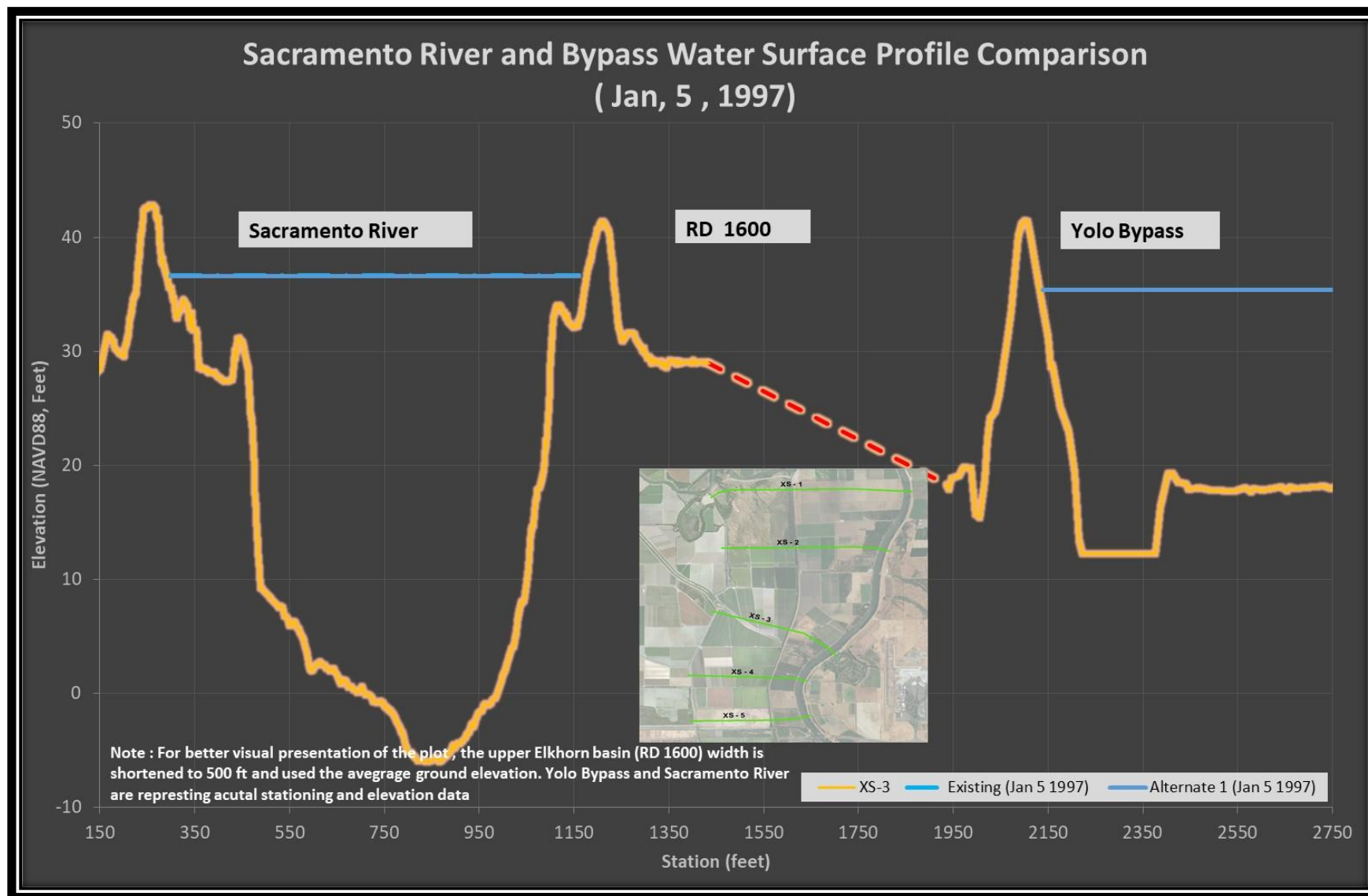


Figure T-6. Water Surface Profile Comparison Cross-section (XS) 3 Under the High Flow Scenario

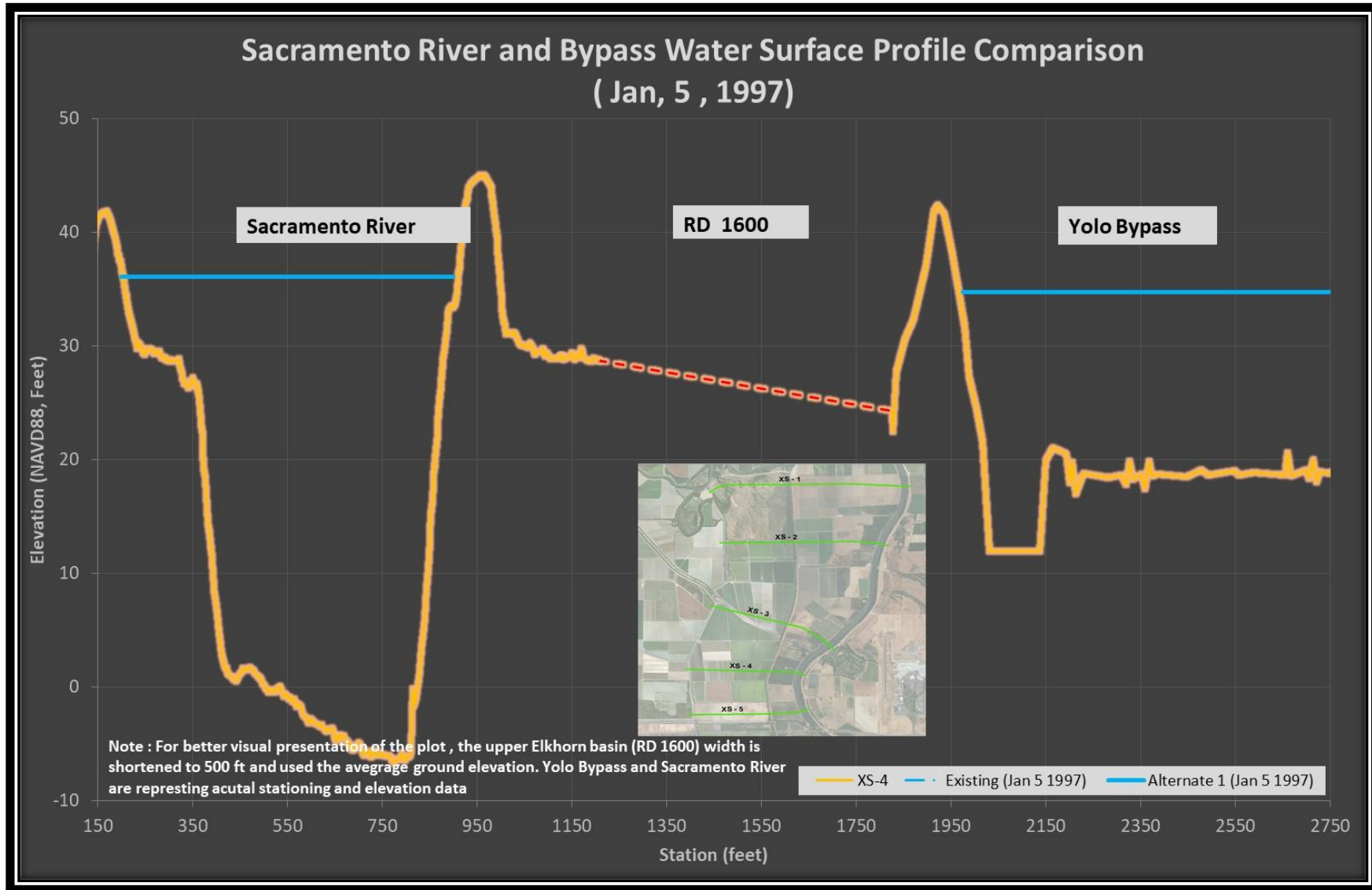


Figure T-7. Water Surface Profile Comparison Cross-section (XS) 4 Under the High Flow Scenario

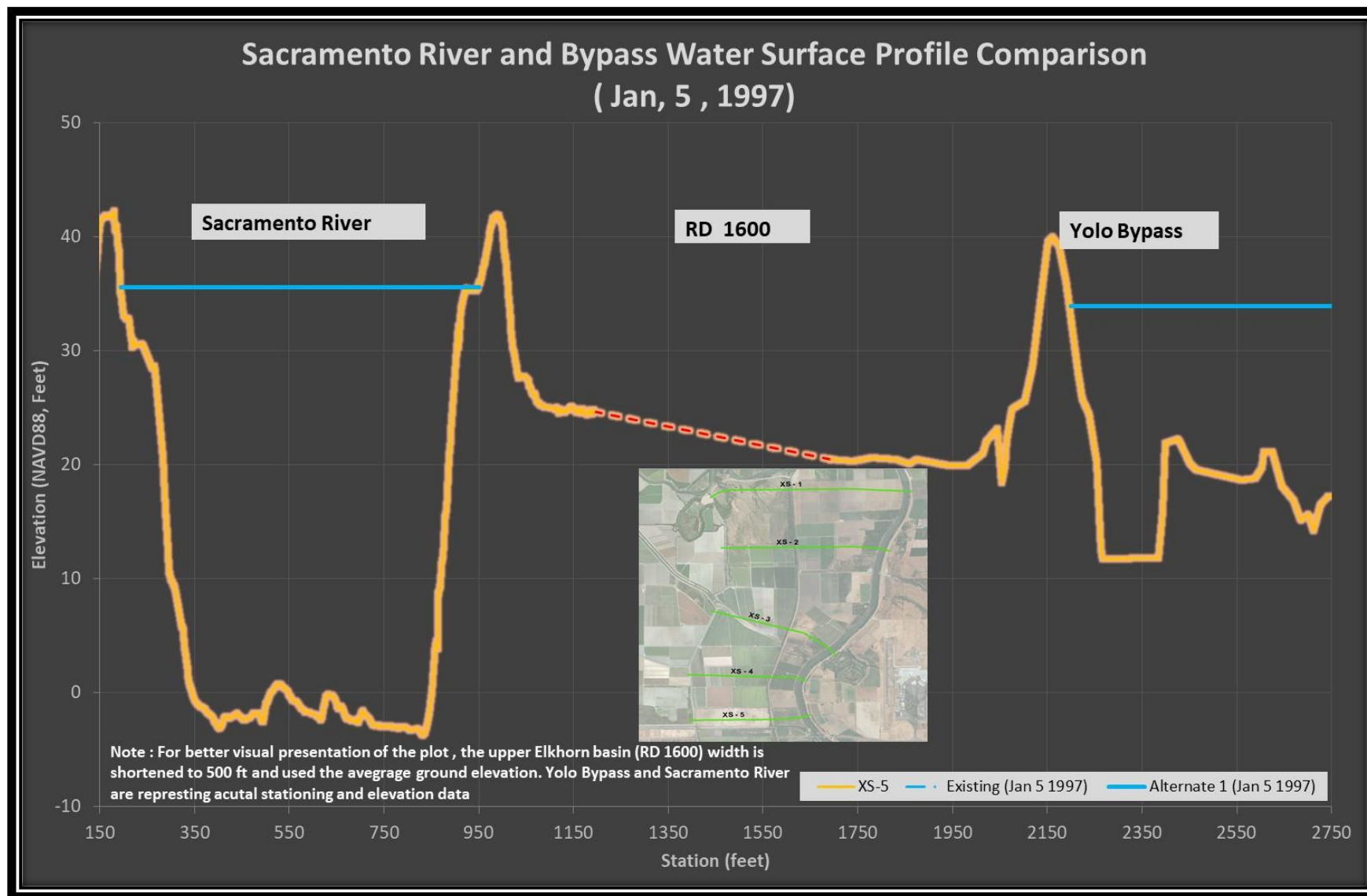


Figure T-8. Water Surface Profile Comparison Cross-section (XS) 5 Under the High Flow Scenario

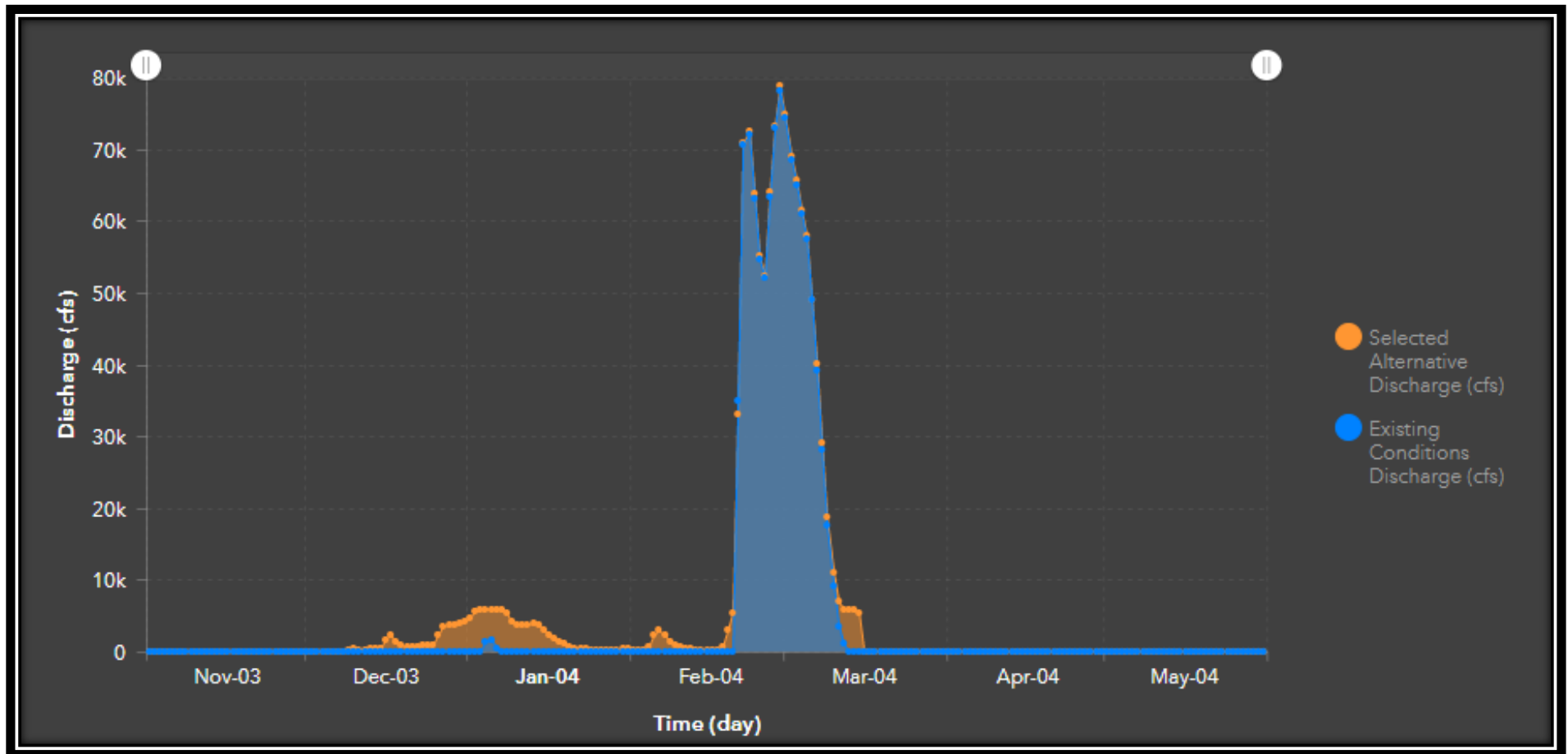


Figure T-9. Flows at Fremont Weir Under Existing Conditions and Alternative 1 in the Medium Flow Scenario

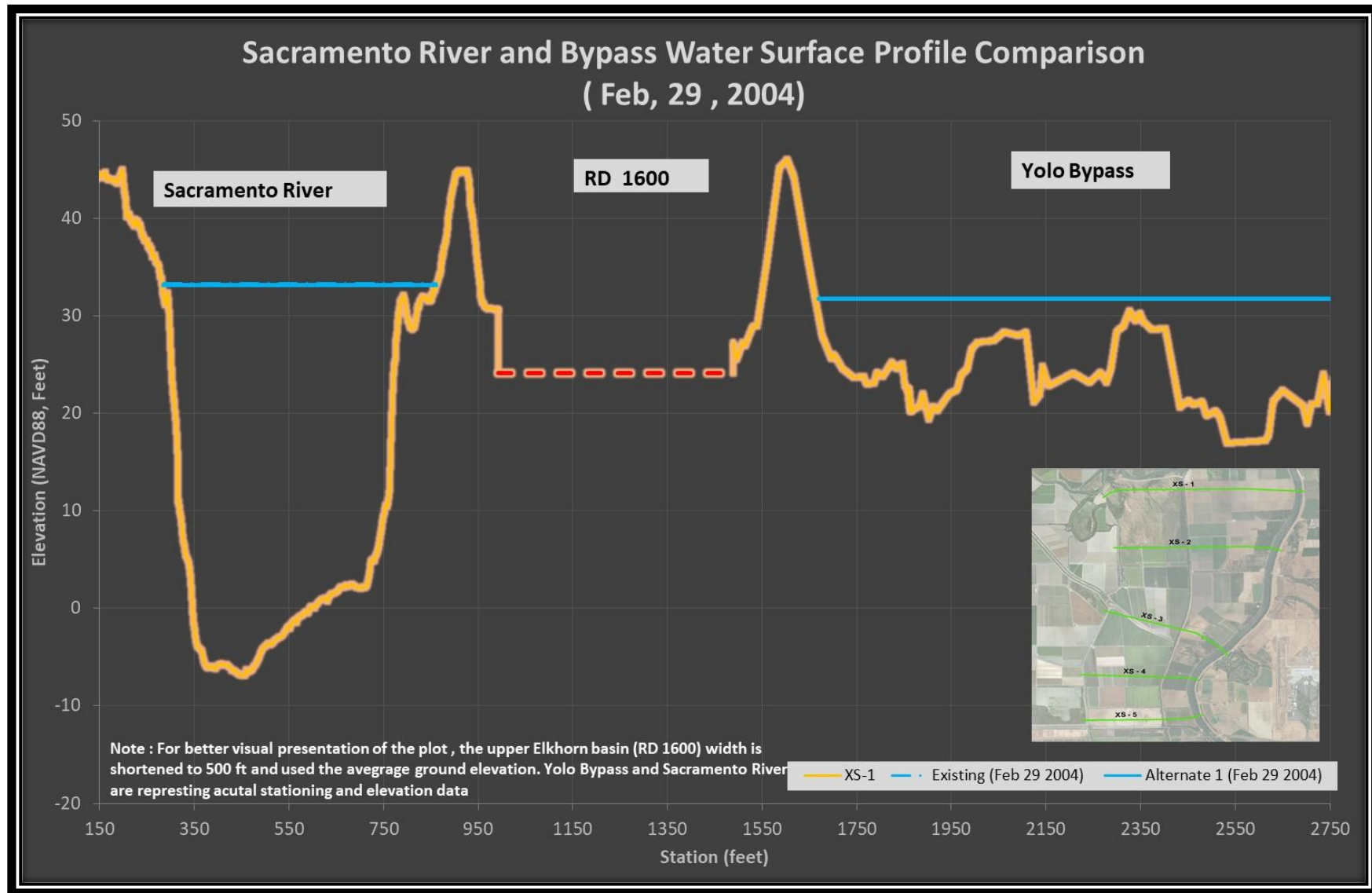


Figure T-10. Water Surface Profile Comparison Cross-section (XS) 1 Under the Medium Flow Scenario

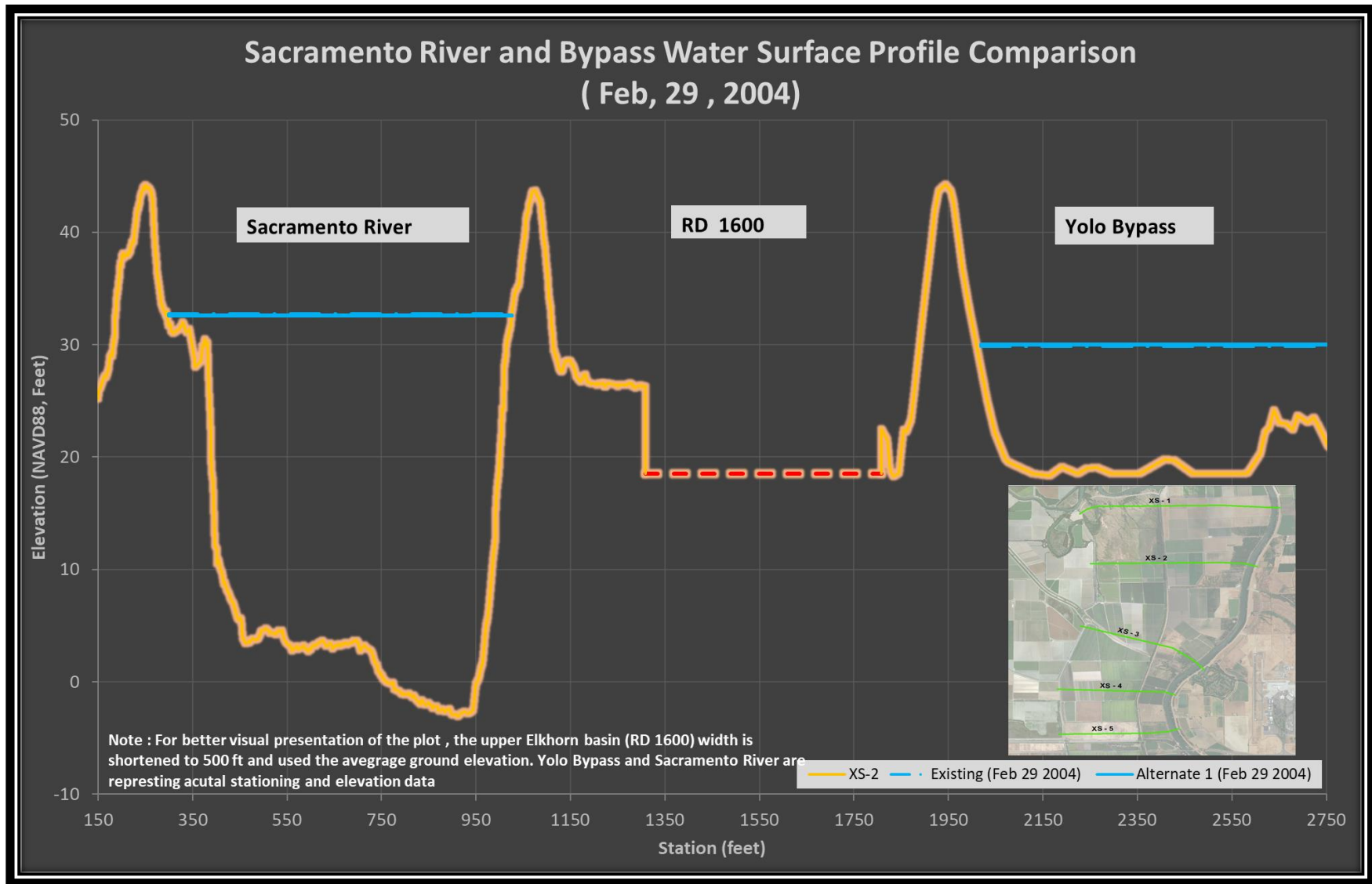


Figure T-11. Water Surface Profile Comparison Cross-section (XS) 2 Under the Medium Flow Scenario

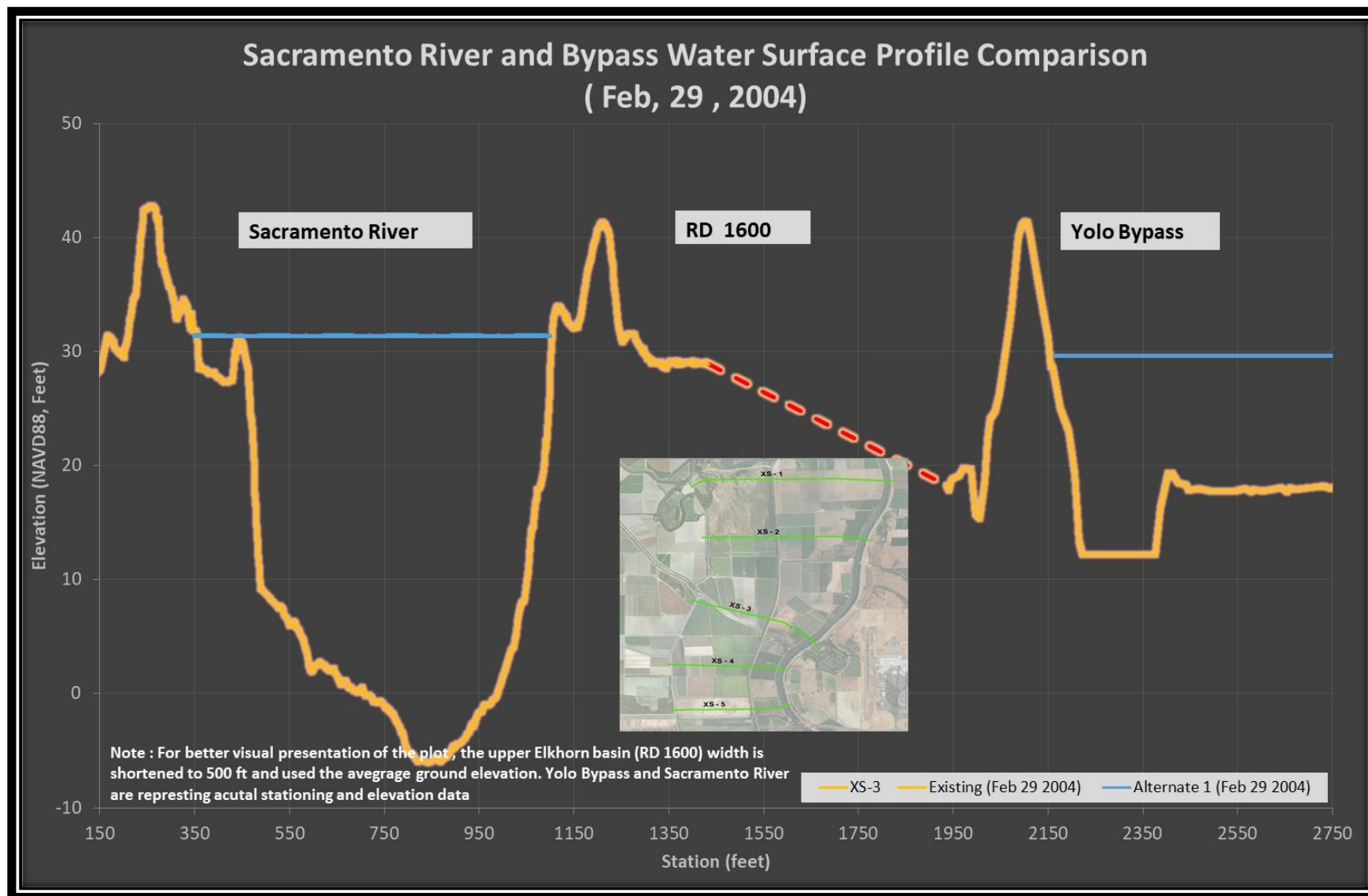


Figure T-12. Water Surface Profile Comparison Cross-section (XS) 3 Under the Medium Flow Scenario

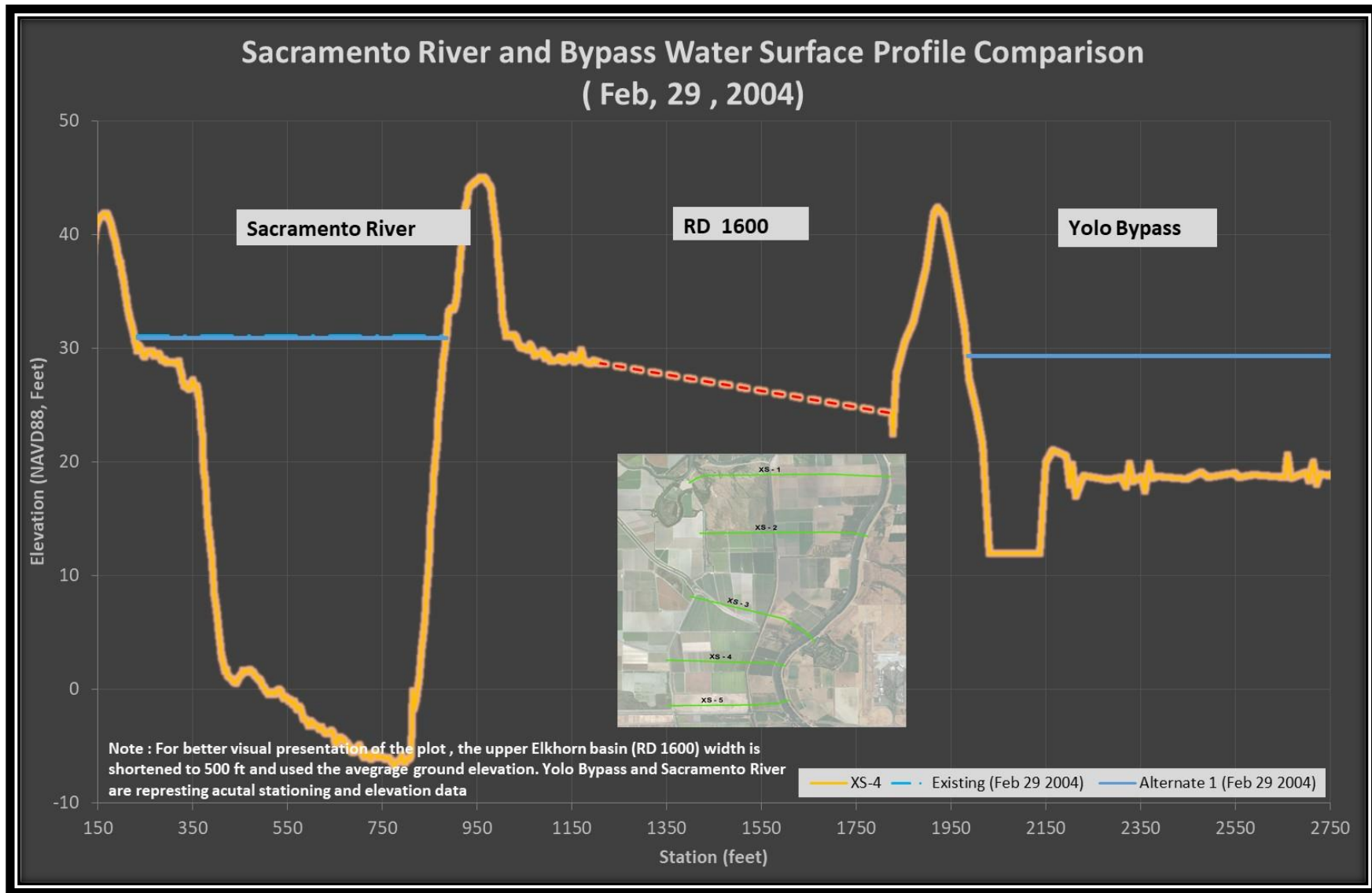


Figure T-13. Water Surface Profile Comparison Cross-section (XS) 4 Under the Medium Flow Scenario

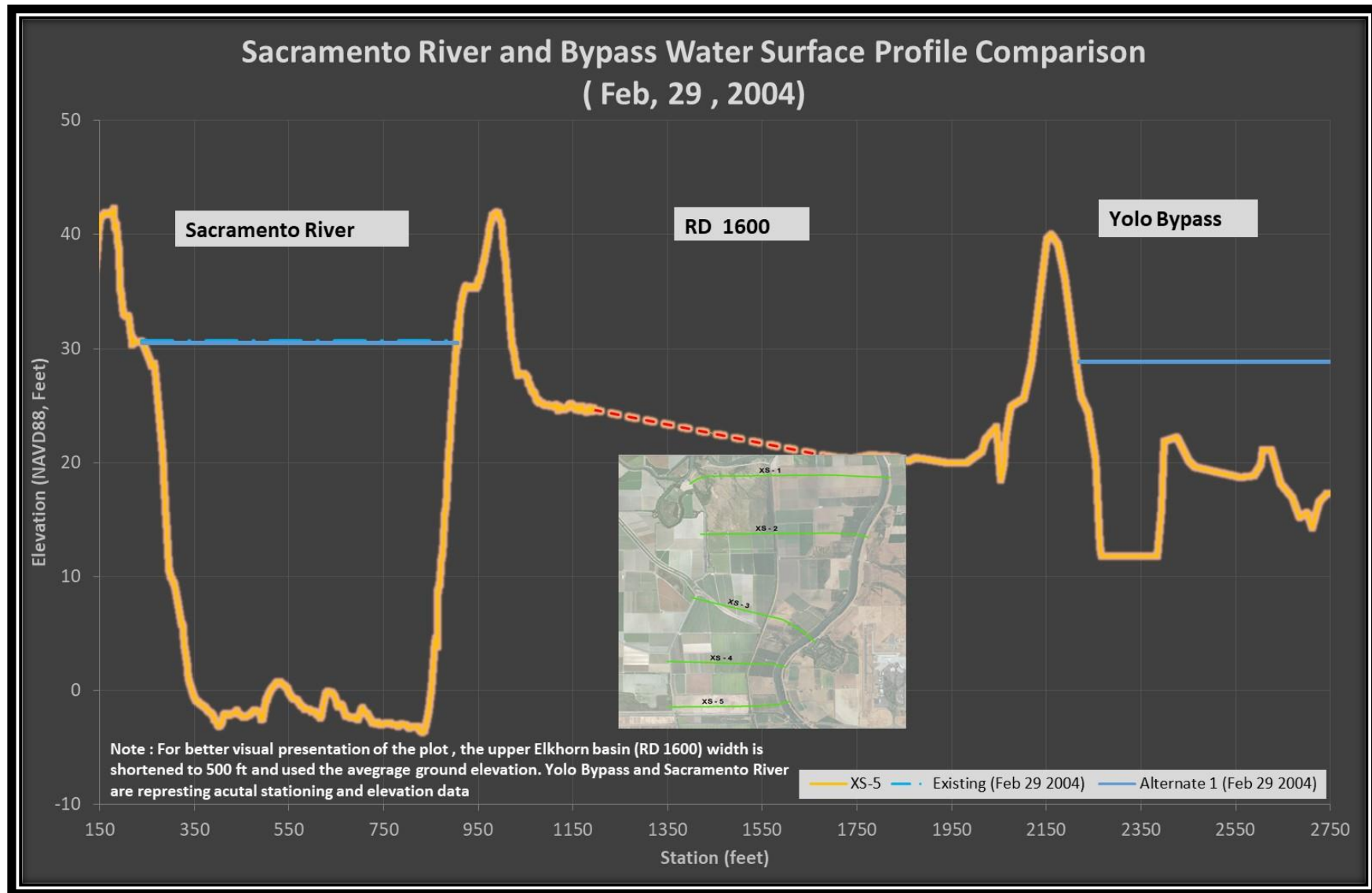


Figure T-14. Water Surface Profile Comparison Cross-section (XS) 5 Under the Medium Flow Scenario

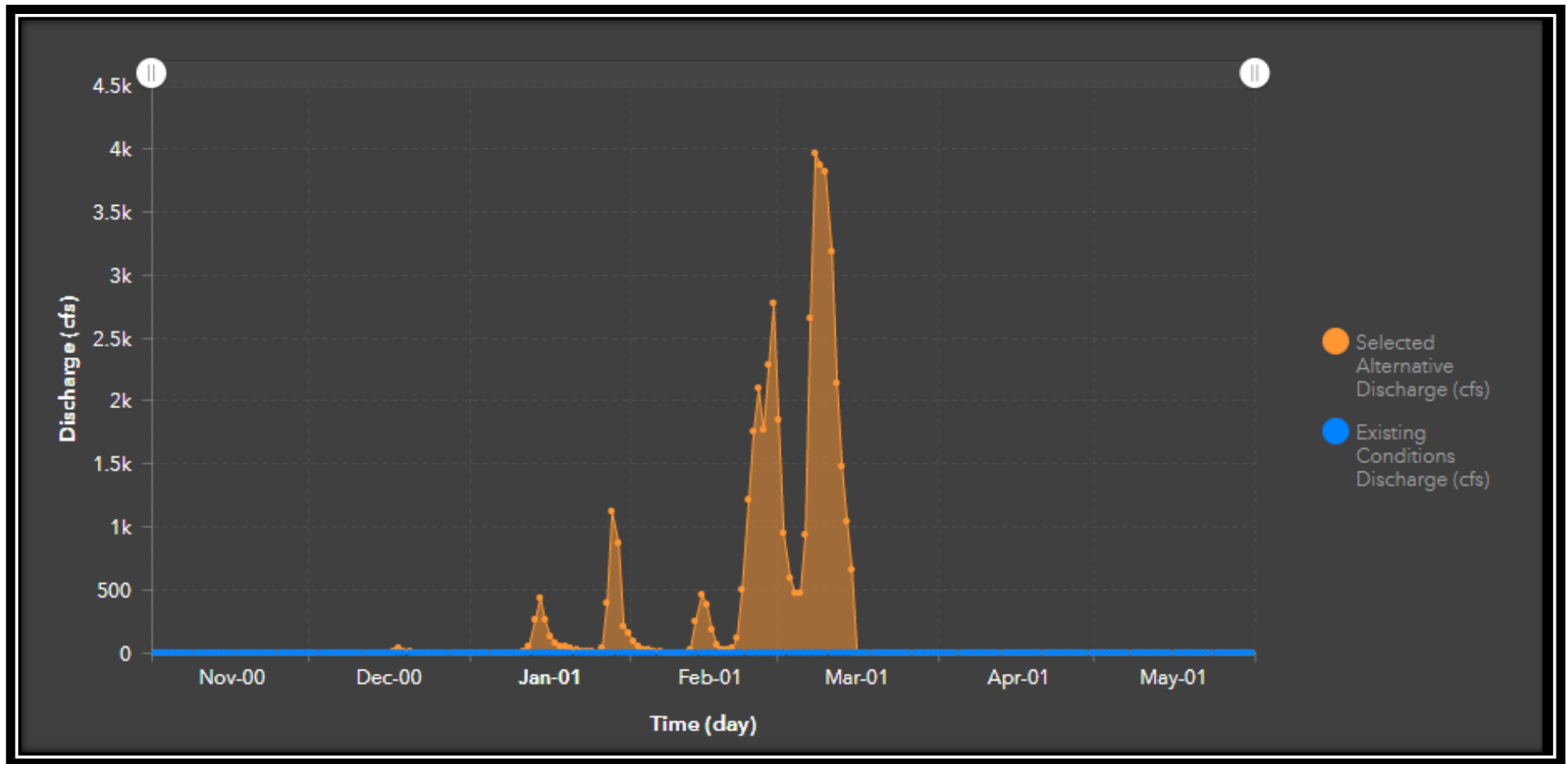


Figure T-15. Flows at Fremont Weir Under Existing Conditions and Alternative 1 in the Low Flow Scenario

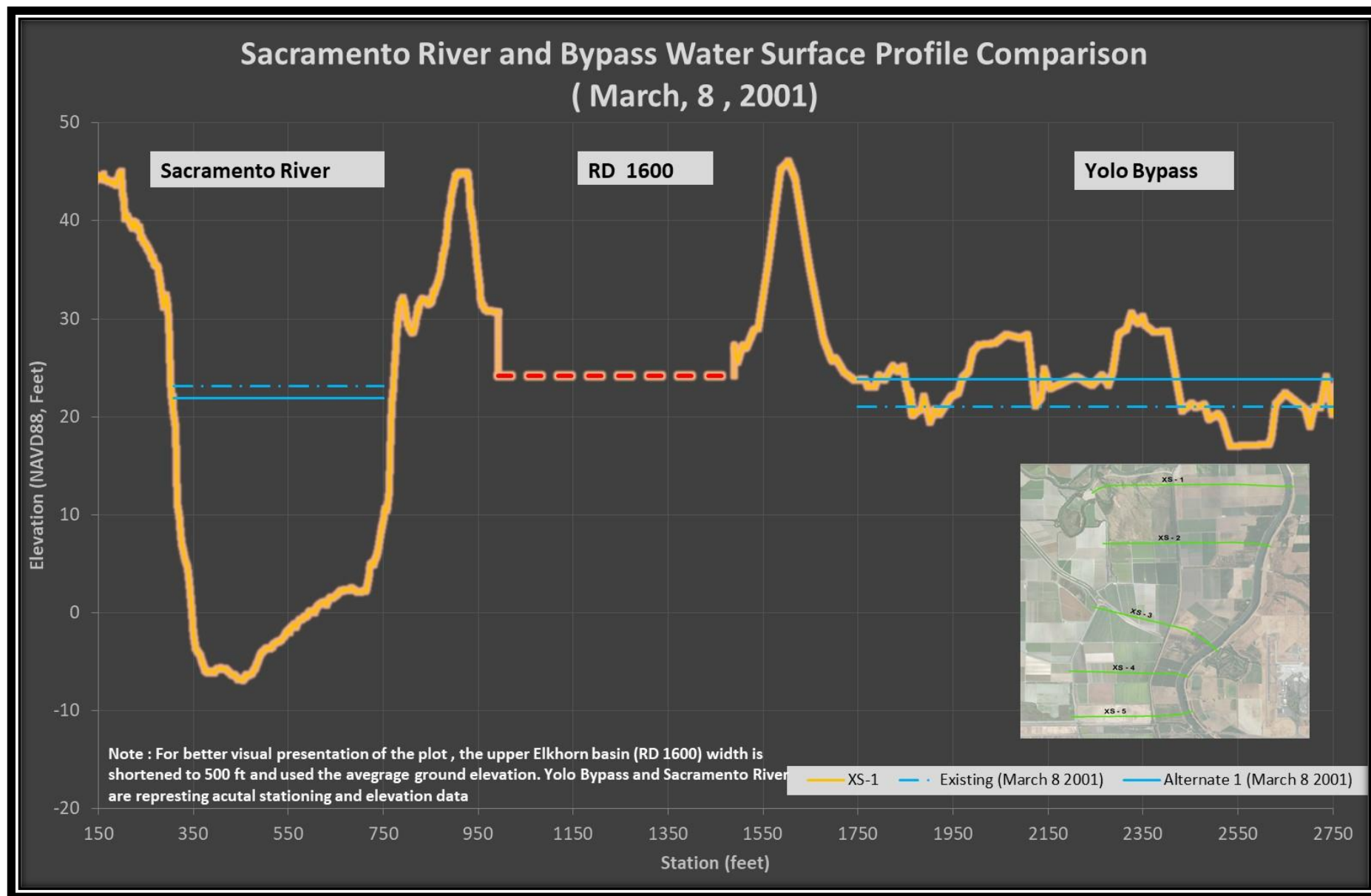


Figure T-16. Water Surface Profile Comparison Cross-section (XS) 1 Under the Low Flow Scenario

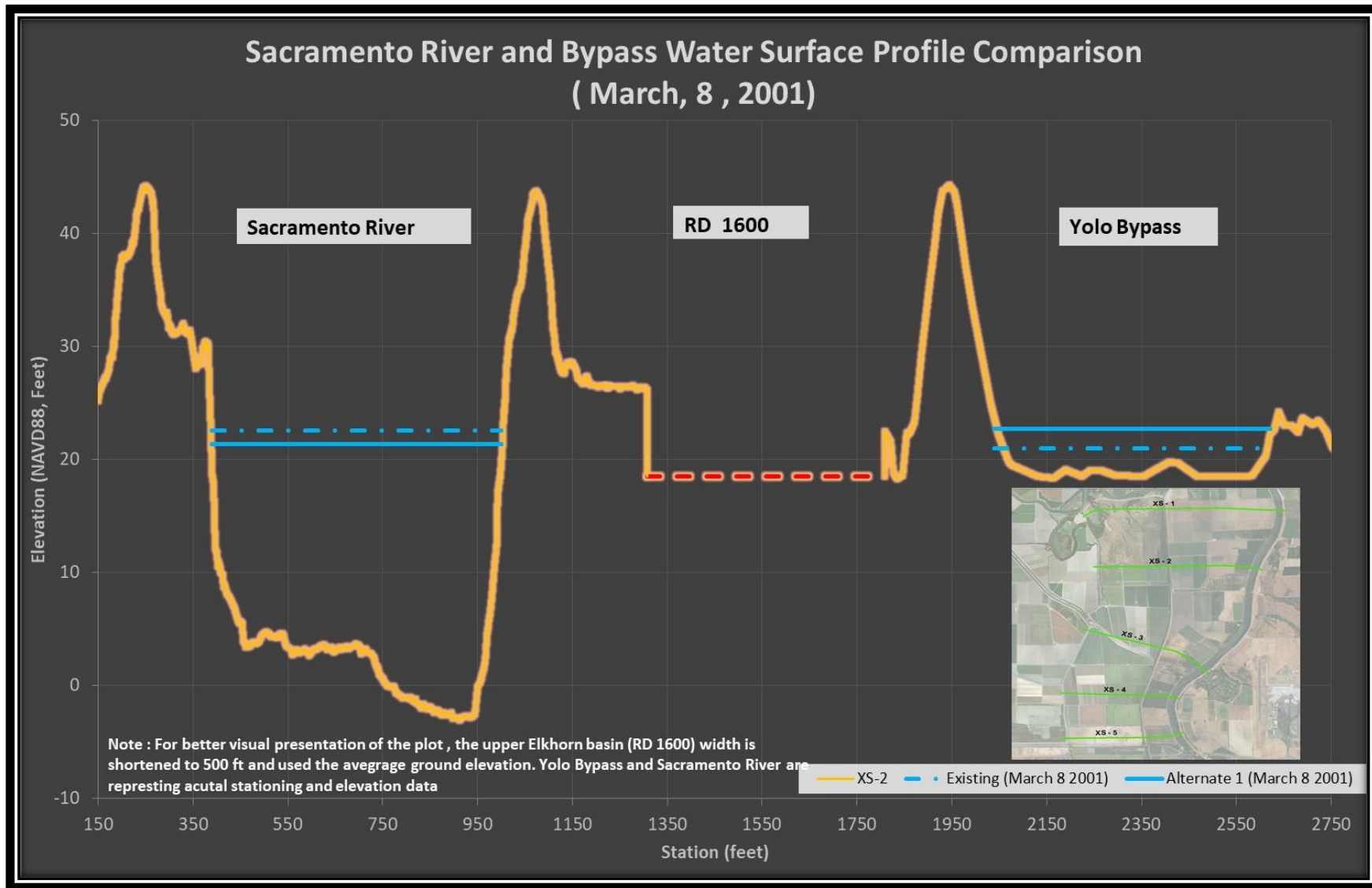


Figure T-17. Water Surface Profile Comparison Cross-section (XS) 2 Under the Low Flow Scenario

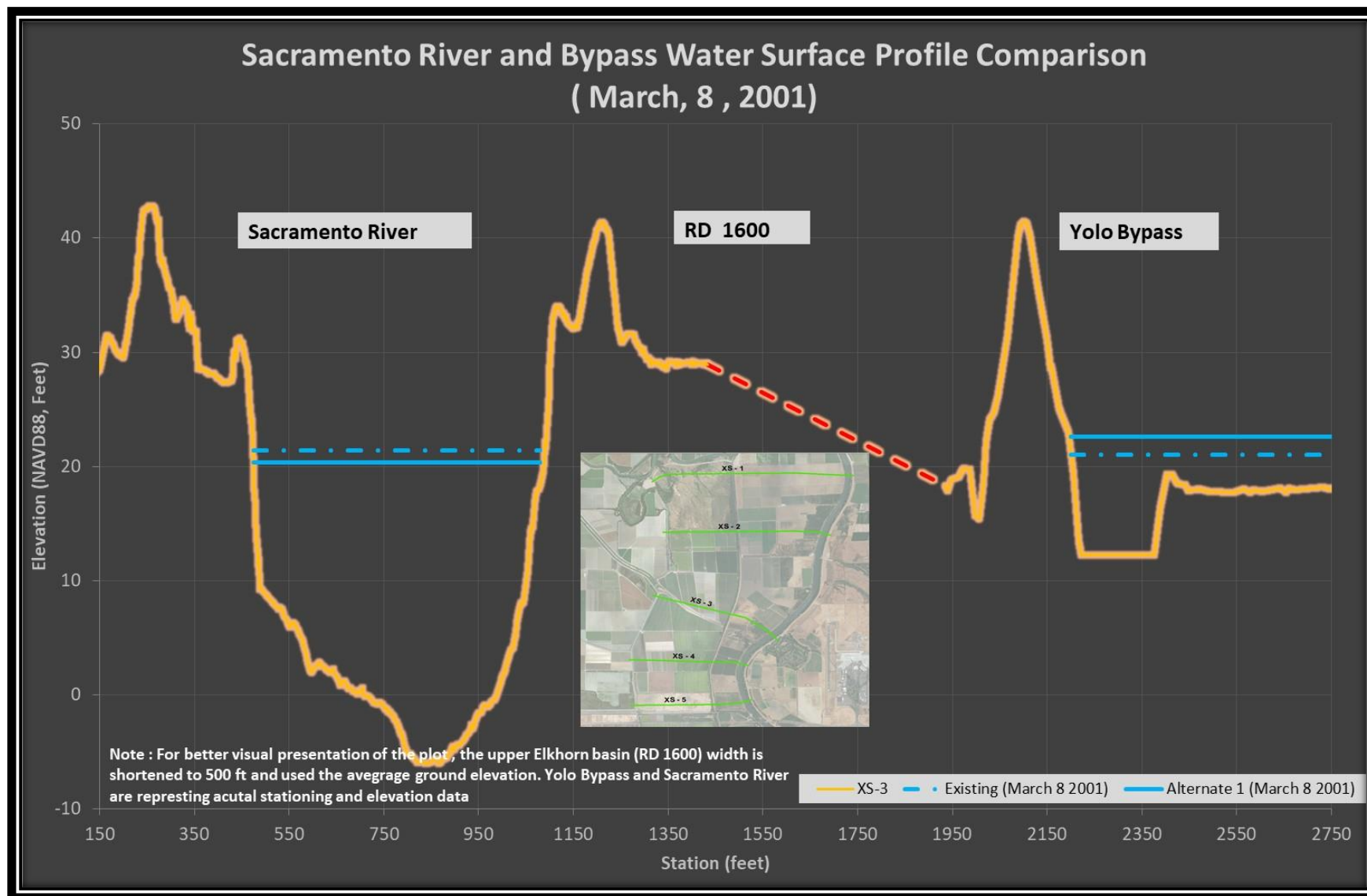


Figure T-18. Water Surface Profile Comparison Cross-section (XS) 3 Under the Low Flow Scenario

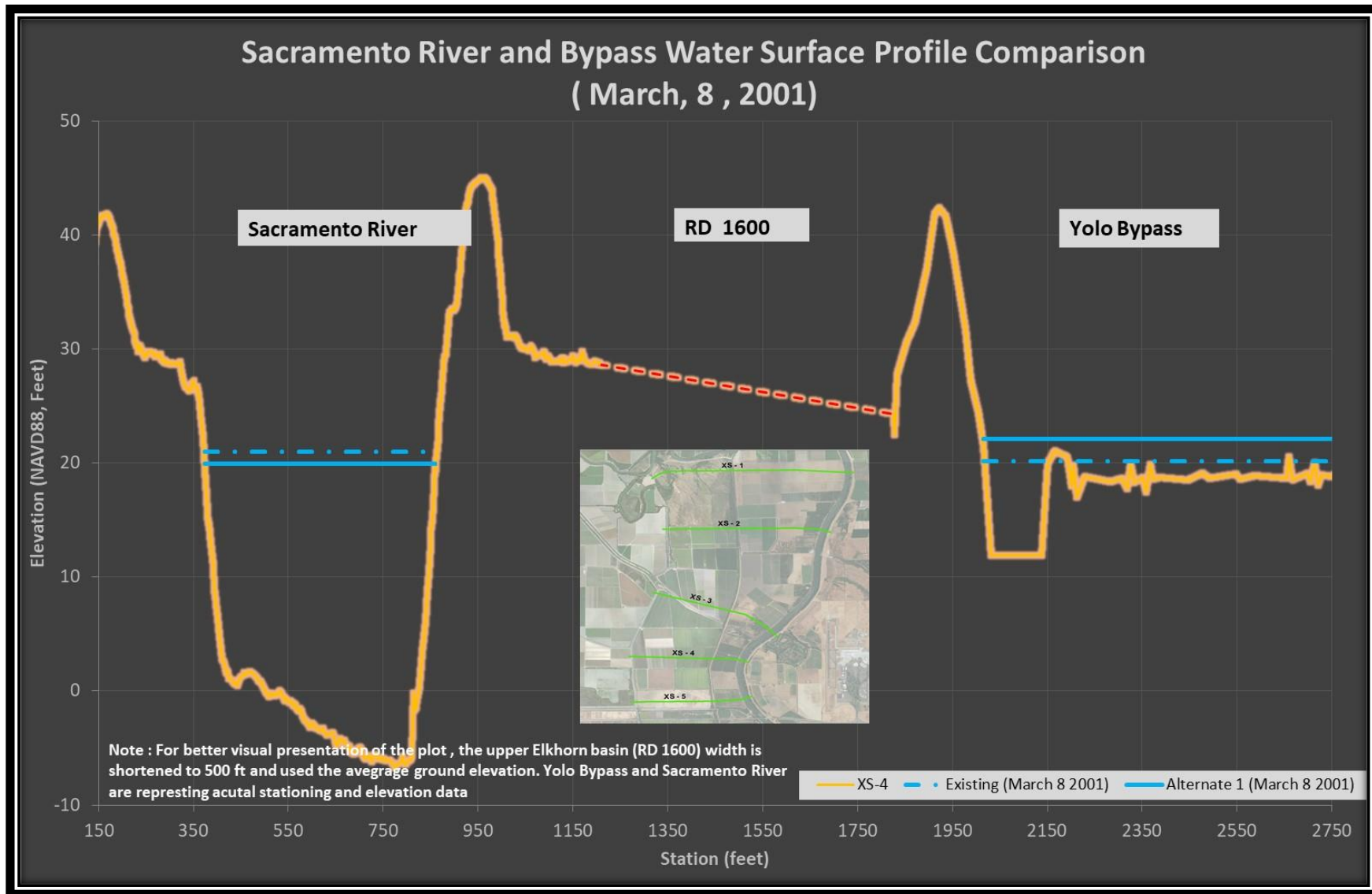


Figure T-19. Water Surface Profile Comparison Cross-section (XS) 4 Under the Low Flow Scenario

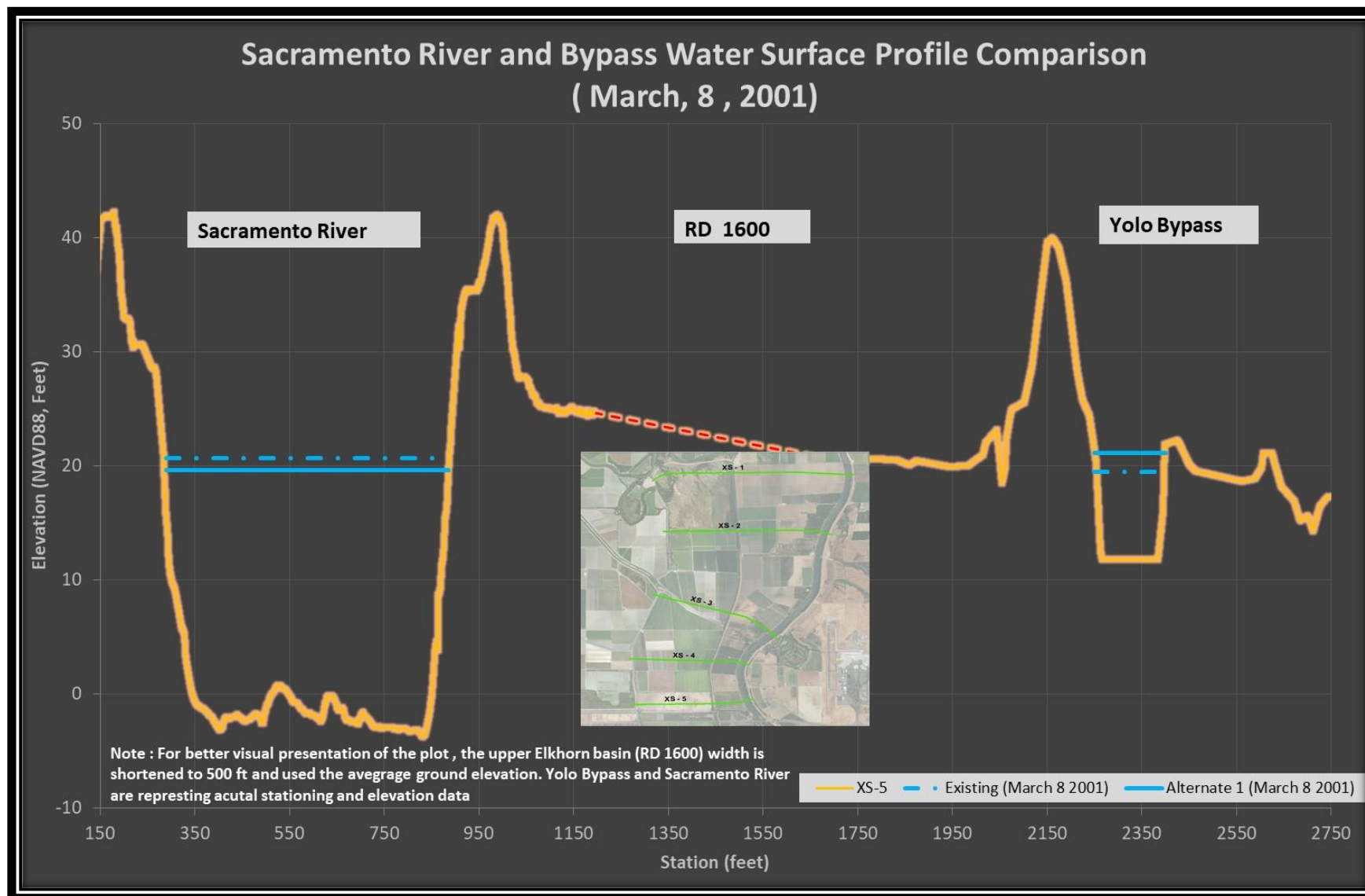


Figure T-20. Water Surface Profile Comparison Cross-section (XS) 5 Under the Low Flow Scenario

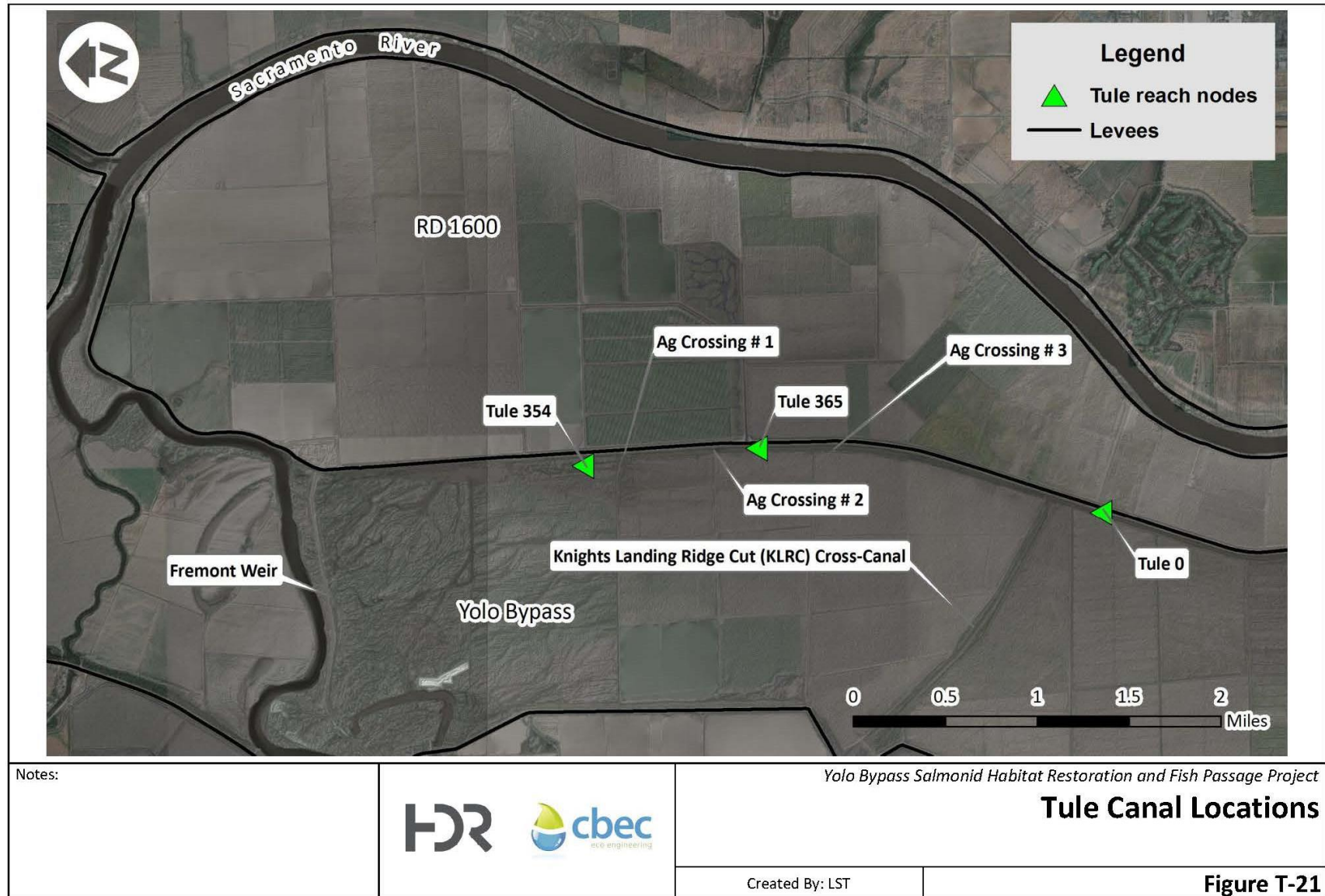


Figure T-21 Tule Canal Locations

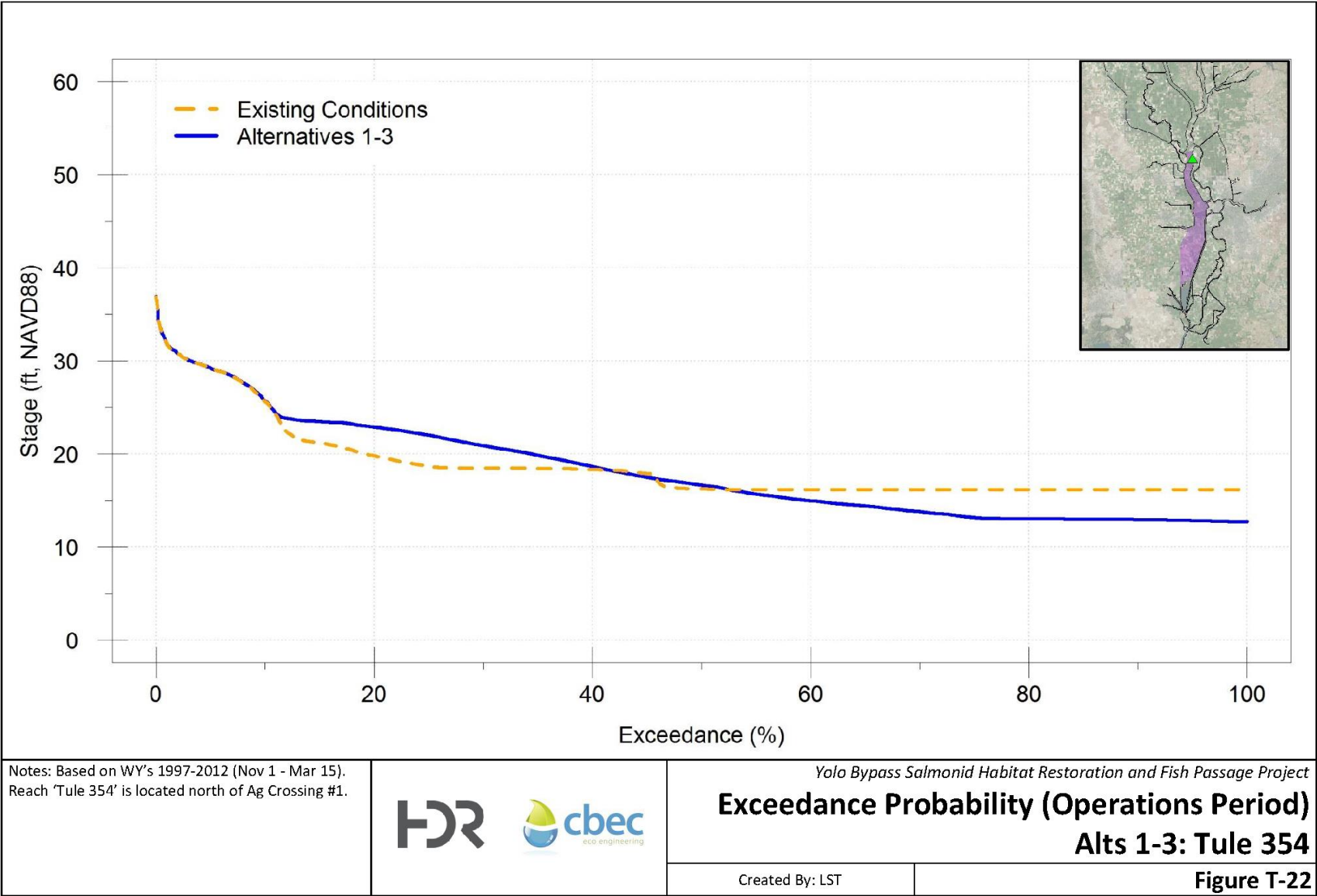


Figure T-22 (exceedance probability Tule_354 for Alt 1,2,3)

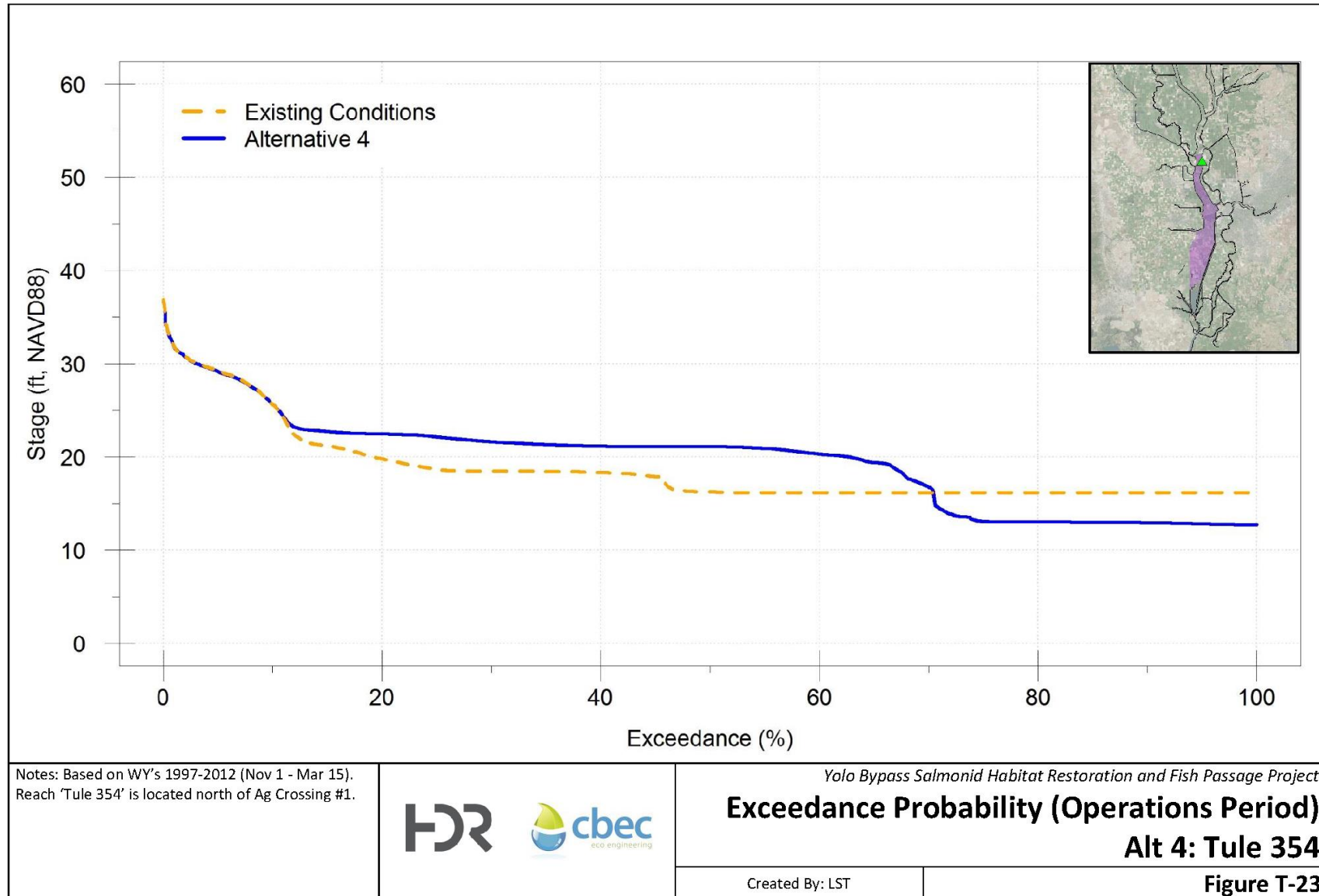


Figure T-23 (exceedance probability Tule_354 for Alt 4)

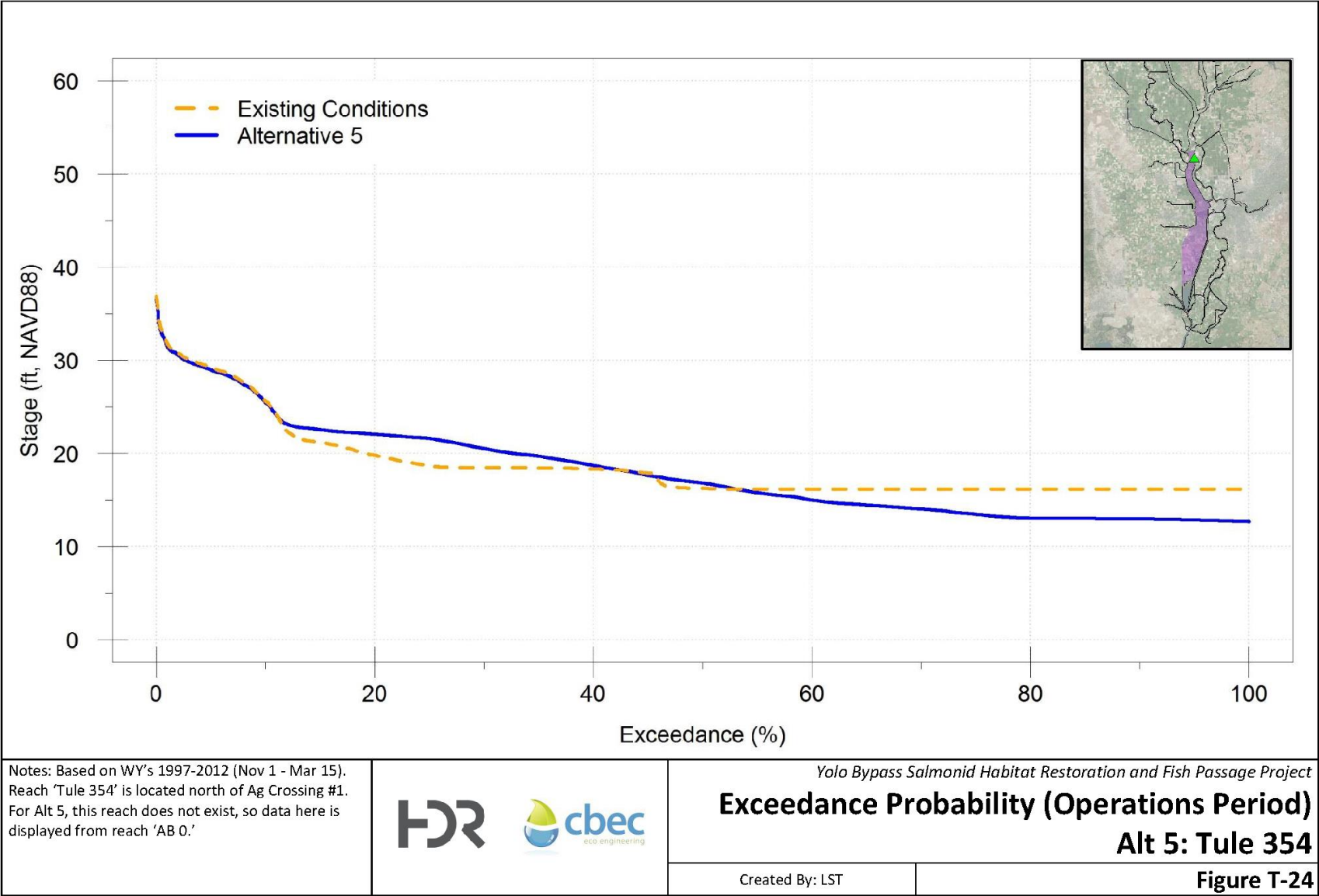


Figure T-24 (exceedance probability Tule_354 for Alt 5)

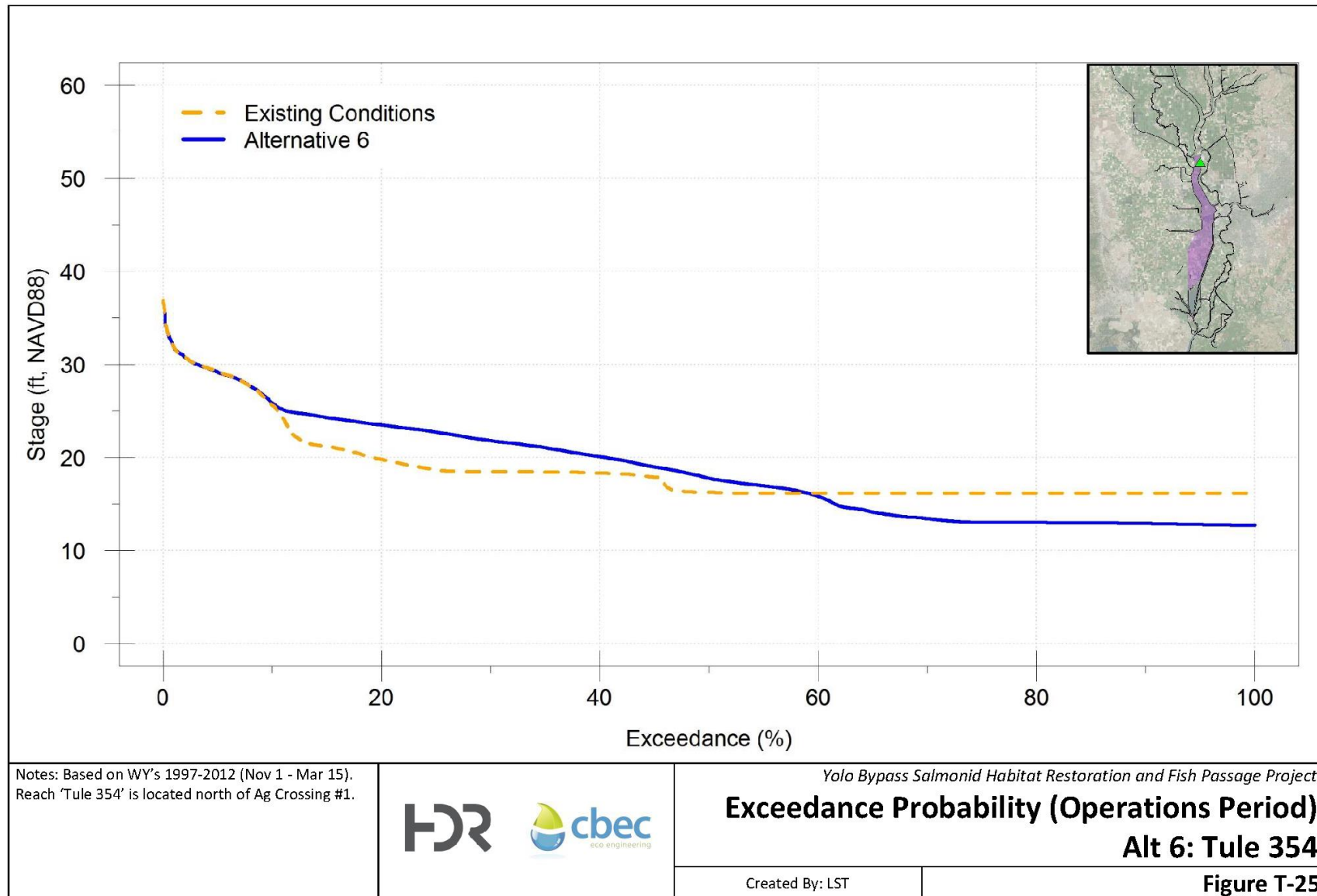


Figure T-25 (exceedance probability Tule_354 for Alt 6)

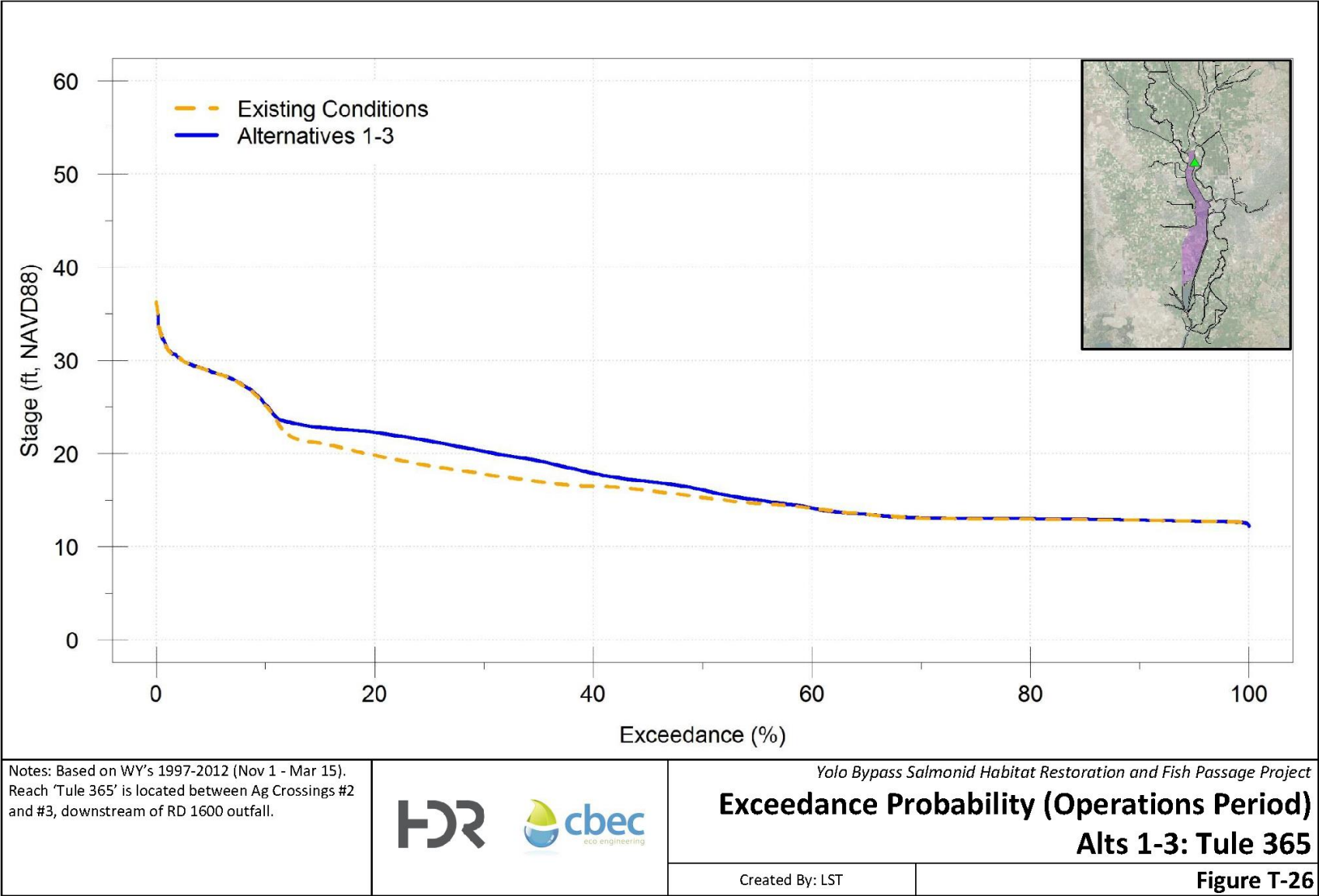


Figure T-26 (exceedance probability Tule_365 for Alt 1,2,3)

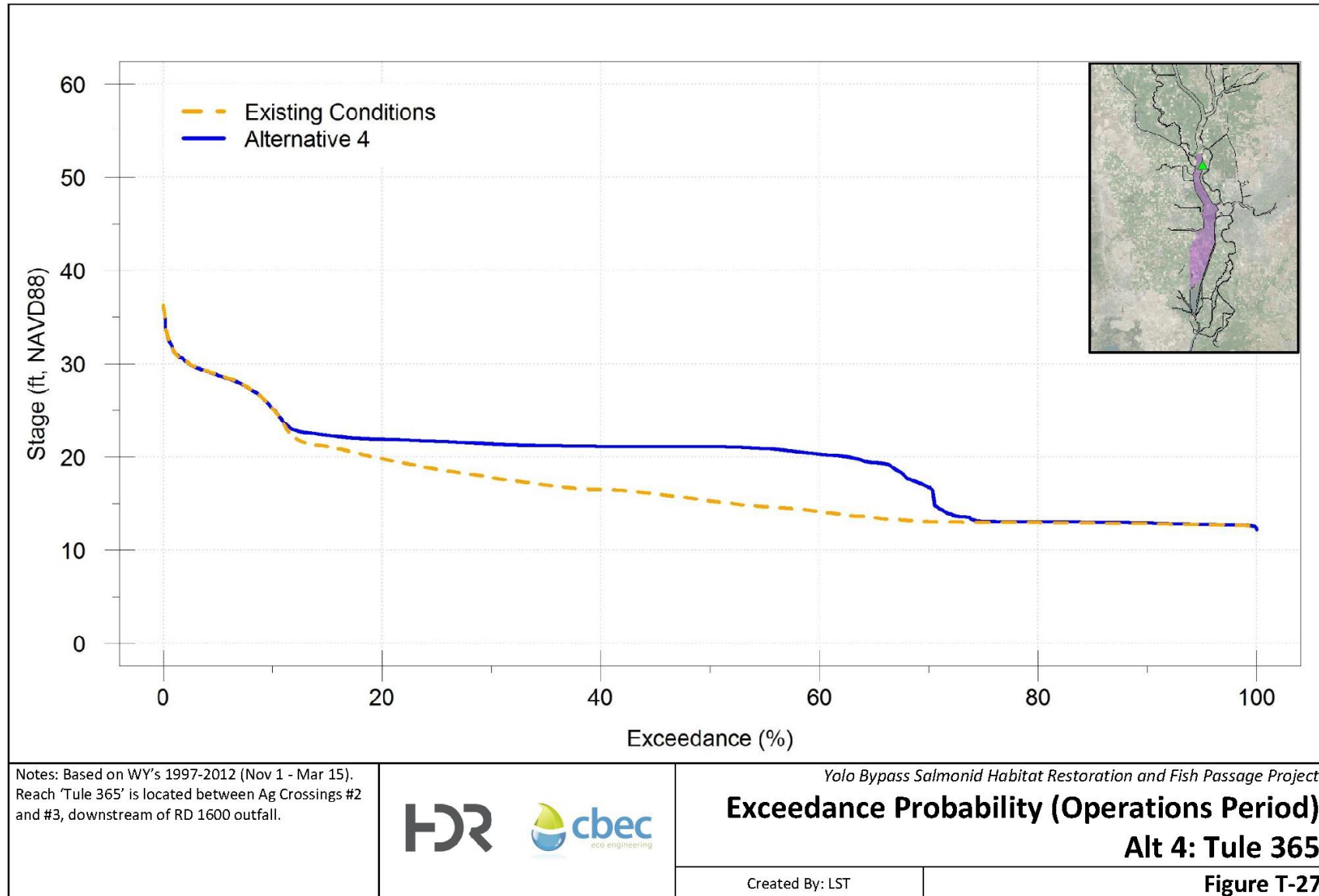


Figure T-27 (exceedance probability Tule_365 for Alt 4)

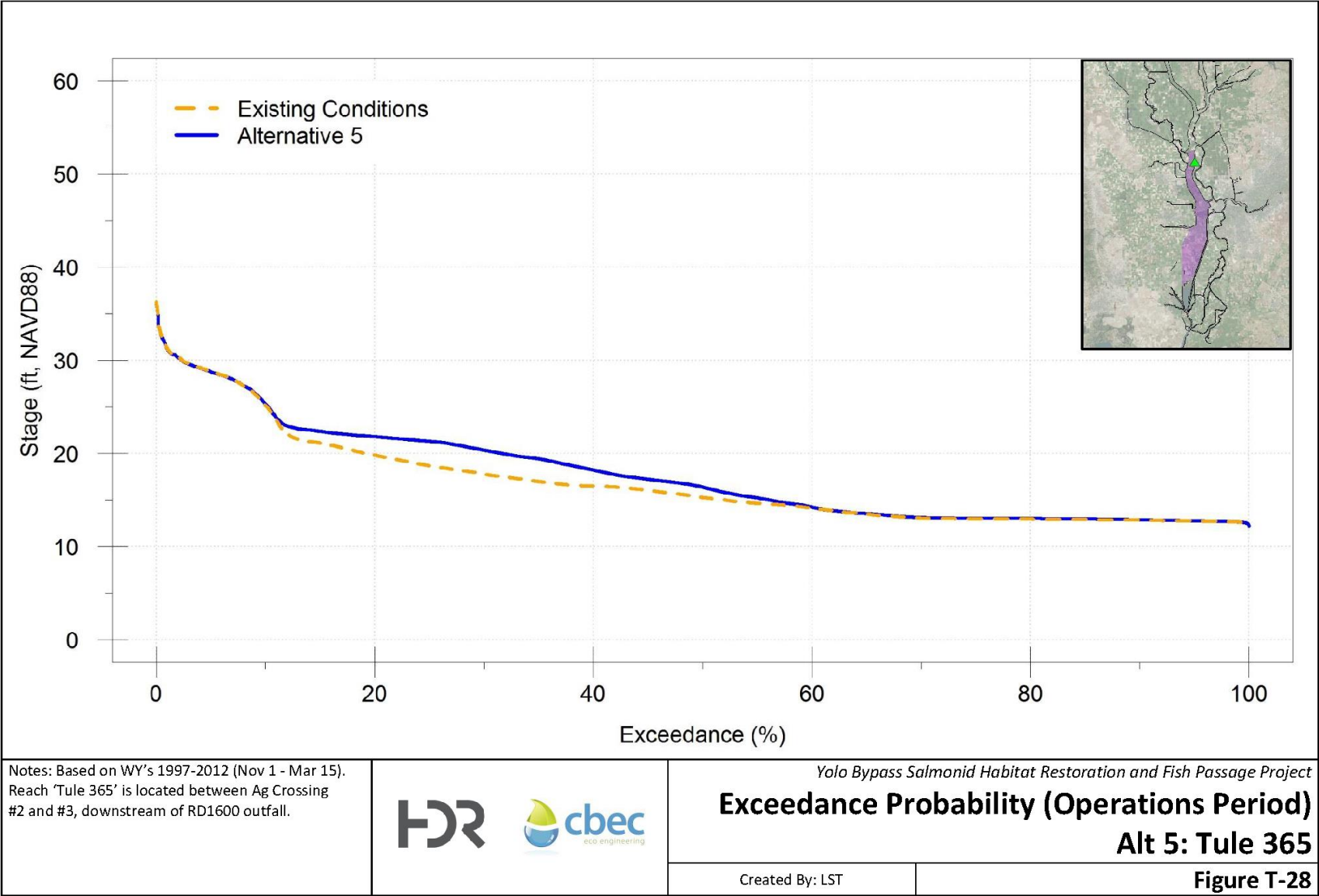


Figure T-28 (exceedance probability Tule_365 for Alt 5)

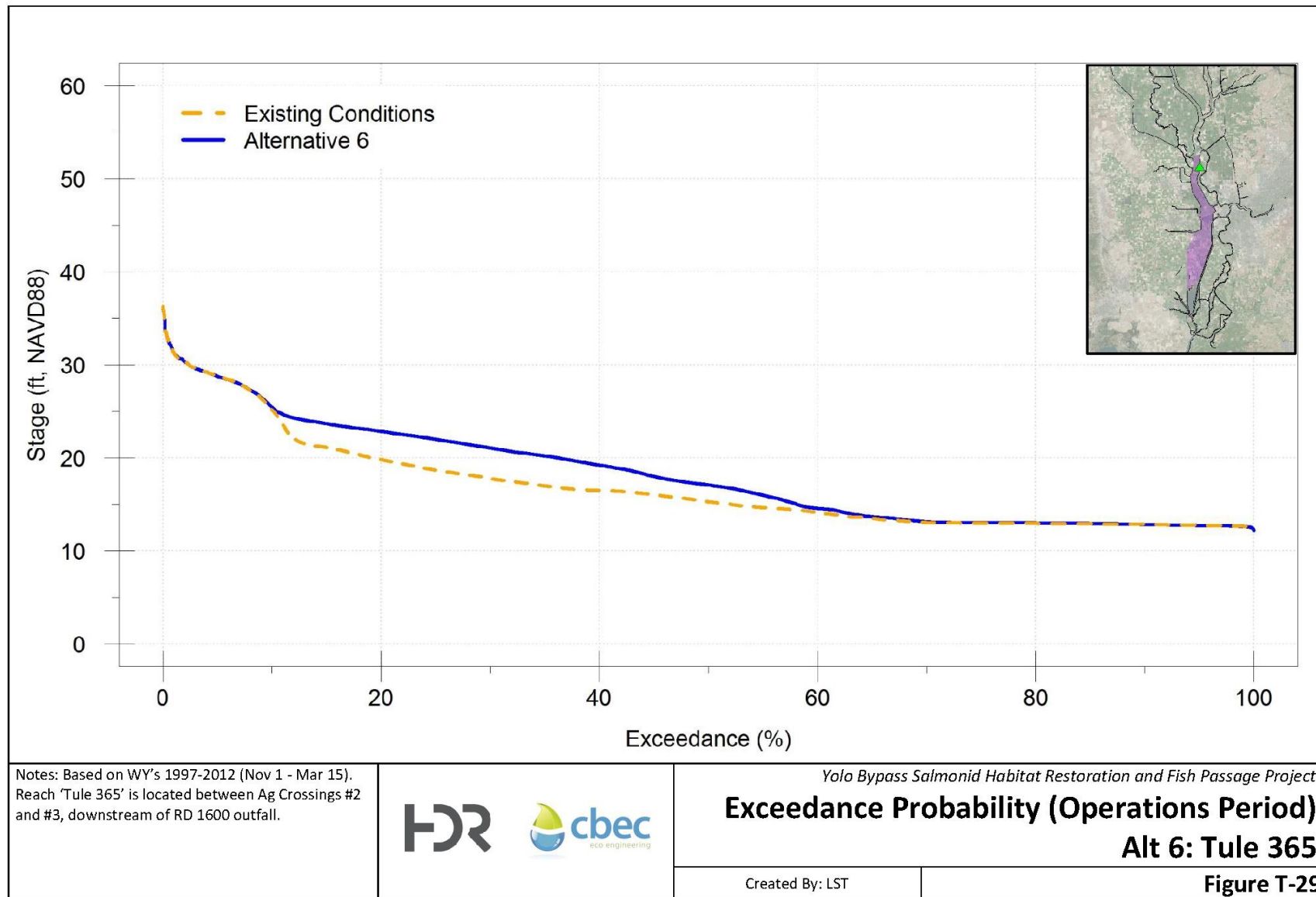


Figure T-29 (exceedance probability Tule_365 for Alt 6)

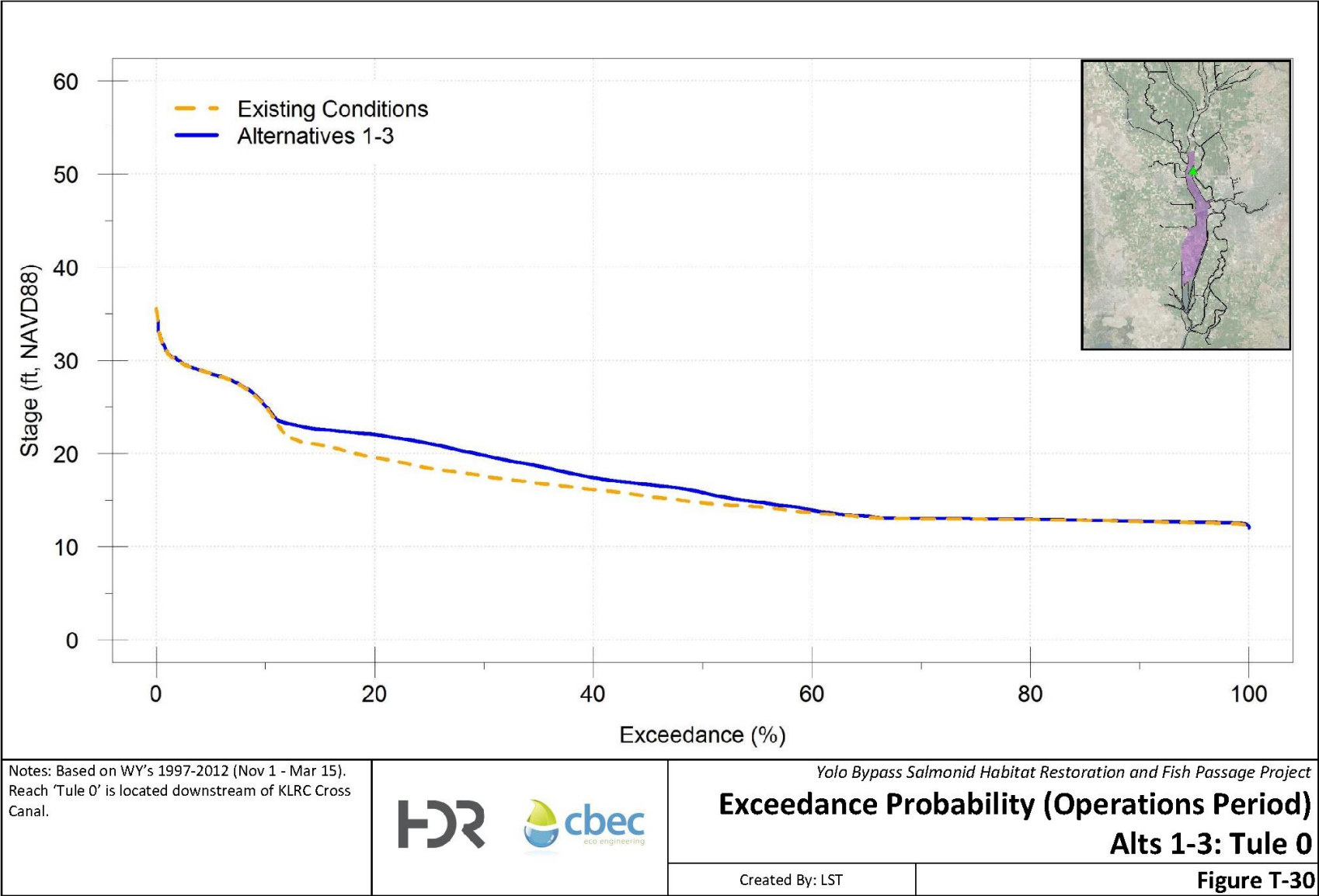


Figure T-30 (exceedance probability Tule_0 for Alt 1,2,3)

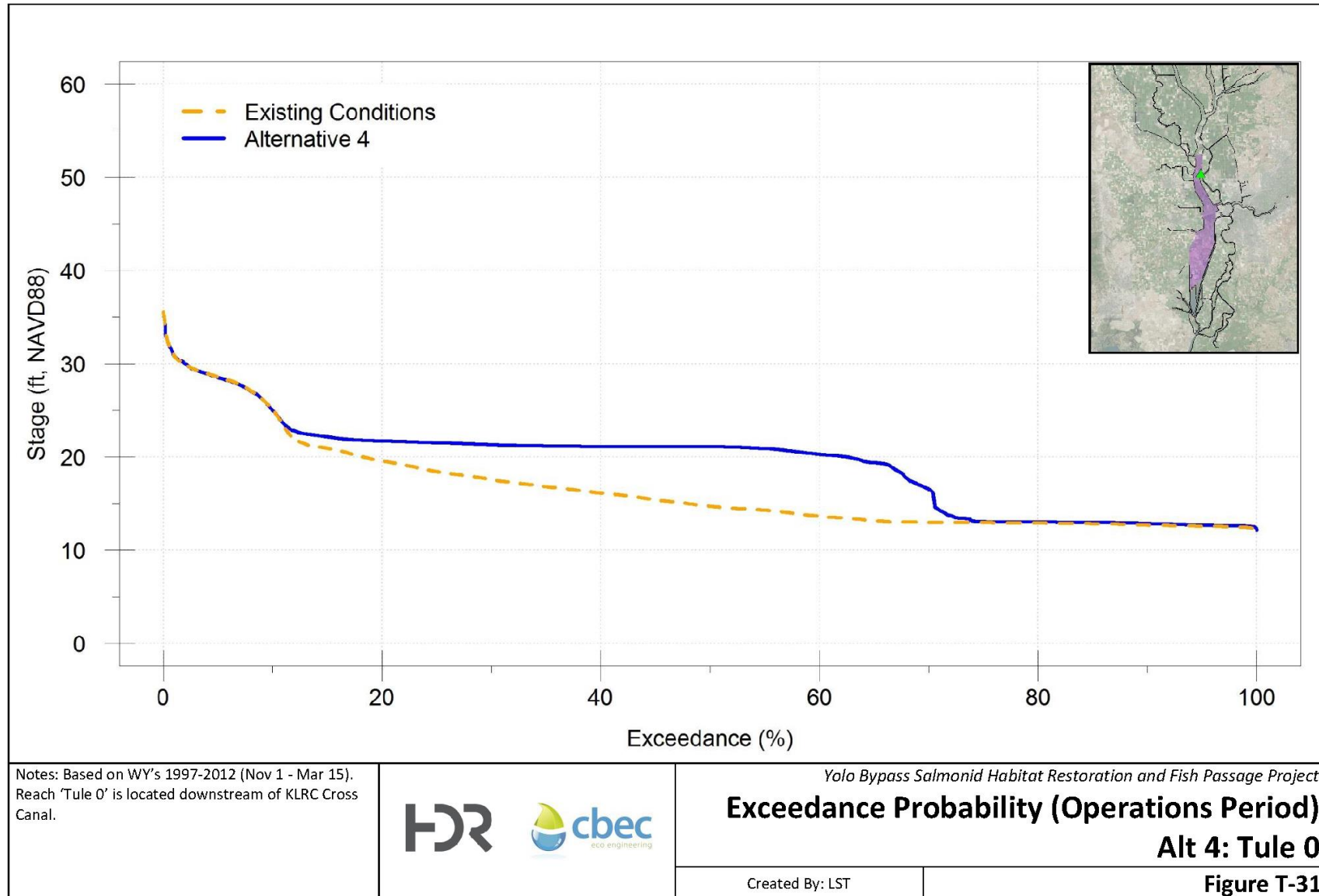


Figure T-31 (exceedance probability Tule_0 for Alt 4)

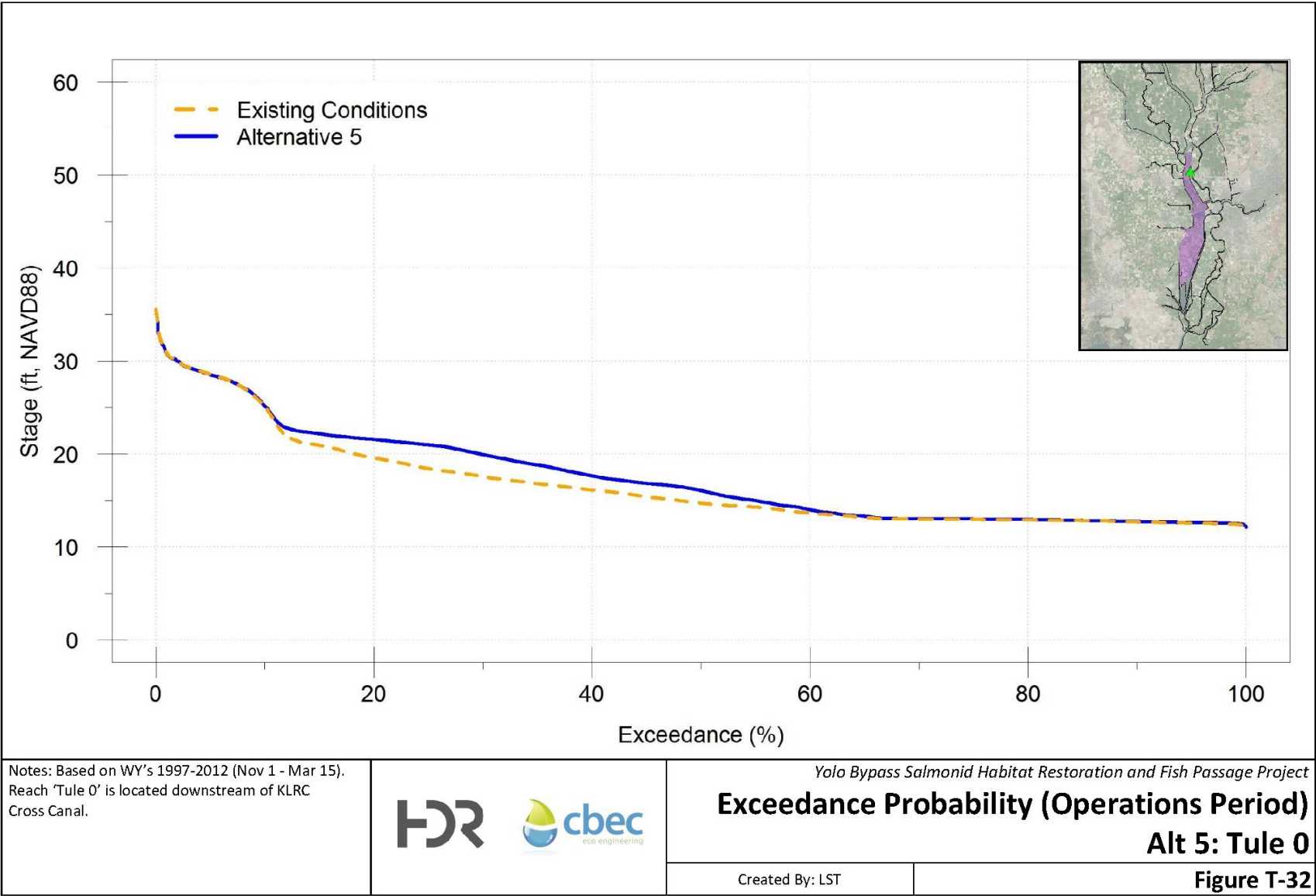


Figure T-32 (exceedance probability Tule_0 for Alt 5)

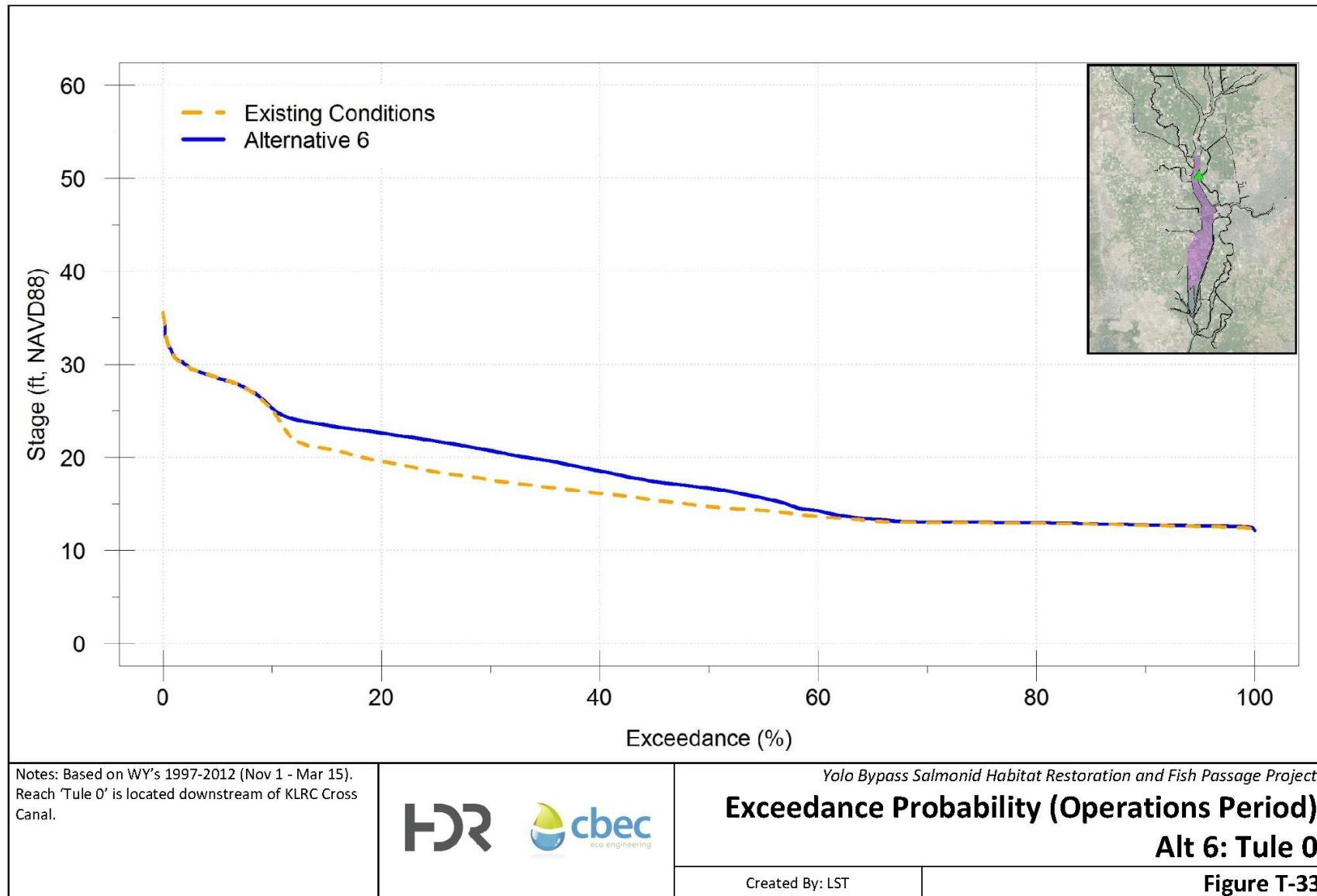


Figure T-33 (exceedance probability Tule_0 for Alt 6)

Appendix U

Lower Elkhorn Basin Levee Setback & Sea Level Rise Impact

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LOWER ELKHORN BASIN LEVEE SETBACK AND SEA LEVEL RISE IMPACT ON YOLO BYPASS SALMONID HABITAT RESTORATION AND FISH PASSAGE PROJECT INUNDATION EXTENT

DRAFT REPORT

MAY 12, 2017

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1 Purpose

This document analyzes how the inundation extent within the Yolo Bypass would be impacted due to implementation of Yolo Bypass Salmonid Habitat Restoration and Fish Passage (YBSHRFP) and Lower Elkhorn Basin Levee Setback (LEBLS) projects for both without and with Sea-Level Rise (SLR) scenarios.

2 Background of LEBLS Project

The Department of Water Resources (DWR) and the Bureau of Reclamation have identified the LEBLS project as a near term action that will expand the capacities of the Yolo Bypass and Sacramento Bypass while improving public safety for approximately 780,000 people in the Lower Sacramento River Basin area by increasing system capacity and reducing flood stages in the surrounding urban areas. Located just north of Sacramento, this project runs from east to west on the north side of the Sacramento Bypass and continues north along the east side of the Yolo Bypass terminating just south of Interstate 5. This project provides the design, engineering, permitting, real estate acquisition, and construction of approximately 7 miles of setback levees that improve flood system capacity and provide opportunities for ecosystem enhancement. Detail about the LEBLS project is provided in the 30% Design Documentation Report of LEBLS project (DWR, 2016).

3 Hydraulic Model

The hydraulic model used to prepare the 30% Design Documentation Report of LEBLS project (DWR, 2016) was used as a source model for this analysis. The source model was enhanced from the Central Valley Floodplain Evaluation and Delineation (CVFED) model by extending the river reaches to upstream forecast points, gages, and flood control reservoirs by the LEBLS project team. The source model extents are shown in Figure 1. The source model was developed and simulated using HEC-RAS version 4.2 Beta (Beta dated 2013.08.01). Detail of this hydraulic model is provided in the 30% Design Documentation Report of LEBLS project (DWR, 2016).

The source model had two geometries - one representing the existing condition and the other representing the LEBLS project condition. The LEBLS project condition geometry is the same as the existing condition geometry with the addition of the levee setback along the east side of the Yolo Bypass, between Interstate 5 and the northern Sacramento Bypass levee, as part of the LEBLS project (refer Figure 2). The details of these two geometries were provided in the 30% Design Documentation Report of LEBLS project (DWR, 2016).

Since this analysis focusses on impact to inundation extents under comparatively low flows (up to 12,000 cfs), inundation extents are expected to be confined within the Yolo Bypass only. Hence, both source model geometries were truncated to focus on the Yolo Bypass only, starting from Fremont Weir and down to CVFED (Central Valley Floodplain Evaluation and Delineation) River Mile 21.493 at the Liberty Island (Figure 3).

The source model and all of the results are referenced in the Universal Transverse Mercator Zone 10 coordinate horizontal system and the North American Vertical Datum of 1988 (NAVD88). All units are in U.S. survey feet.

3.1 Boundary Conditions

The intent of this analysis was to assess the impact on inundation extent due to implementation of the YBSHRFP project under both existing condition (without Lower Elkhorn levee setback) as well as with-LEBLS project condition (with Lower Elkhorn Basin levee setback).

The YBSHRFP project alternatives would bring 3,000 cfs to 12,000 cfs (range of flows for the different alternatives). Therefore, in order to assess the impact of all alternatives, this analysis includes five different steady flows of 1000, 3000, 6000, 9000, and 12000 cfs as upstream boundary conditions. Note

that, this analysis is not interested in the scenario after Fremont Weir overtops, as the entire Yolo Bypass would be inundated under that scenario (DWR, 2017).

The stage boundary condition at Rio Vista gage is fluctuating due to tidal influence, however, the tidal influence diminishes as it travels north in the Yolo Bypass. At the Liberty Island where the downstream boundary of the truncated model is located, the fluctuation of stage due to tidal influence becomes much reduced (refer Figure 4). The average stage corresponding to the 3,000 cfs to 12,000 cfs flow was found to be approximately 4.1 feet. Therefore, a fixed stage of 4.1 feet was chosen as the downstream boundary condition for the RAS model.

3.2 Adjustment for the Sea-Level Rise (2070 Projections)

As per the resolution of the California Ocean Protection Council on Sea-Level Rise (adopted on March 11, 2011), year 2070 projections recommended an average SLR of 2 feet (24 inches) from the baseline (year 2000) (OPC, 2011). To account for how much of an increase does this mean at the current model's downstream boundary at the Liberty Island, both source RAS models (existing as well as with-LEBLS conditions) were run for a CVHS 100-year storm pattern with a 2 feet increase in the tidally influenced Rio Vista stage, and then the stages (with and without SLR) at current model's downstream boundary at the Liberty Island were compared (refer Figure 5 through Figure 7). For both with existing as well as with-LEBLS conditions, the maximum difference of stage due to SLR was found to be approximately 2 feet. Therefore, in order to analyze the impact on inundation extents due to SLR, a fixed stage of 6.1 feet was chosen as the downstream boundary condition for the RAS model.

4 Determination of Inundation Extents

For each flow scenario, the floodplain inundation extents were processed with HEC-GeoRAS under ArcMAP environment. The topographic data was obtained from two sources: CVFED LIDAR, 2008-2010 data developed by DWR and design-level topographic surveys and survey control reports (DWR, 2016).

5 Results

5.1 Impact of LEBLS Project on Inundation Extents without SLR

The impact of LEBLS Project on inundation extent was observed only in the upper Yolo Bypass north of I-80. No change in inundation extent was observed in the Yolo Bypass south of I-80. The impacts on inundation extents for 1000, 3000, 6000, 9000, and 12000 cfs flow conditions due to the YBSHRFP project are shown in **Table 1** and in **Figure 8** through **Figure 12**.

Table 1. Impact of LEBLS Project on Inundation Extents without SLR

YBSHRFP flow conditions (cfs)	Inundated Area (acre)		Increase in Inundation due to LEBLS Project	
	Existing Condition	LEBLS Project Condition	Acre	%
1,000	600,375,561	600,685,719	310,159	0.05
3,000	1,009,818,112	1,019,624,885	9,806,773	0.97
6,000	1,193,613,116	1,219,743,589	26,130,473	2.19
9,000	1,354,421,840	1,378,425,291	24,003,451	1.77
12,000	1,465,592,583	1,493,533,922	27,941,338	1.91

5.2 Impact of SLR on Inundation Extents

The impact of SLR for both existing and LEBLS project conditions was observed only in the very southern portion of the Yolo Bypass. This is consistent with the maximum water surface profile comparisons (with and without SLR) between existing and LEBLS project conditions (refer **Figure 13** through **Figure 22**), which show that impact of SLR does not go further north of Thomsen Road at CVFED River Mile 32.48. The impacts of SLR on inundation extents for 1000, 3000, 6000, 9000, and 12000 cfs flow conditions due to the YBSHRFP project for both with and without LEBLS project conditions are shown in **Figure 23** through **Figure 27**, and also numerically estimated in **Table 2** and **Table 3**.

Table 2. Impact of SLR on Inundation Extents for Existing Condition

YBSHRFP flow conditions (cfs)	Inundated Area (acre)		Increase in Inundation due to SLR	
	Existing Condition without SLR	Existing Condition with SLR	Acre	%
1,000	600,375,561	677,848,498	77,472,937	12.90
3,000	1,009,818,112	1,031,161,777	21,343,665	2.11
6,000	1,193,613,116	1,229,259,070	35,645,954	2.99
9,000	1,354,421,840	1,379,019,613	24,597,773	1.82
12,000	1,465,592,583	1,486,378,782	20,786,199	1.42

Table 3. Impact of SLR on Inundation Extents for LEBLS Project Condition

YBSHRFP flow conditions (cfs)	Inundated Area (acre)		Increase in Inundation due to SLR	
	LEBLS Project Condition without SLR	LEBLS Project Condition with SLR	Acre	%
1,000	600,685,719	678,158,956	77,473,237	12.90
3,000	1,019,624,885	1,040,959,398	21,334,513	2.09
6,000	1,219,743,589	1,255,416,281	35,672,692	2.92
9,000	1,378,425,291	1,403,016,025	24,590,734	1.78
12,000	1,493,533,922	1,514,305,213	20,771,291	1.39

References

- California Department of Water Resources. (2016). *Lower Elkhorn Basin Levee Setback Project, Design Documentation Report, 30% Submittal*. Sacramento.
- California Department of Water Resources. (2017). *Yolo Bypass Salmonid Habitat Restoration and Fish Passage Hydrodynamic Modeling Draft Report*. Sacramento.
- California Ocean Protection Council. (2011). *Resolution of the California Ocean Protection Council on Sea-Level Rise*.



Figure 2. Setback area for LEBLS project

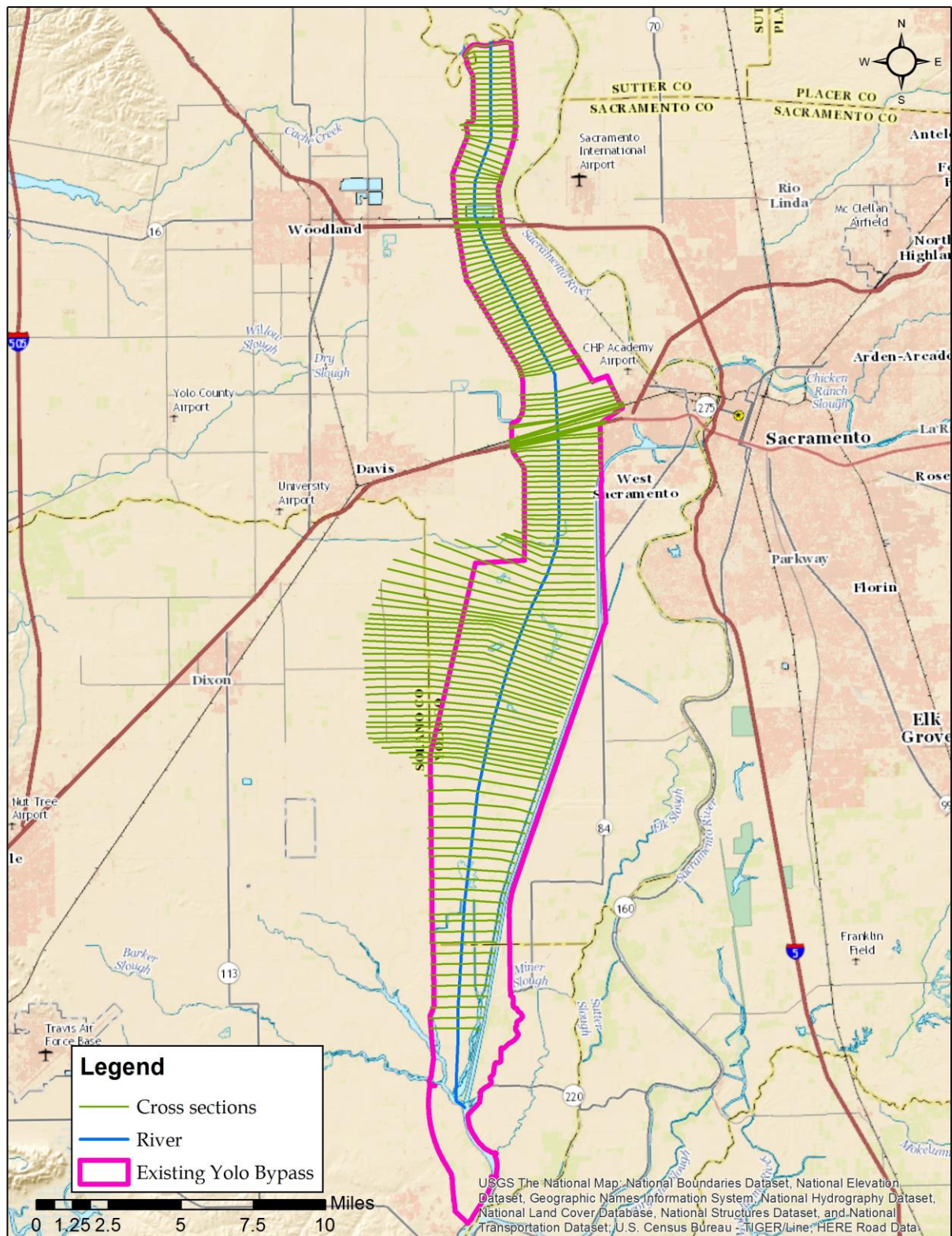


Figure 3. HEC-RAS model extent for the present analysis

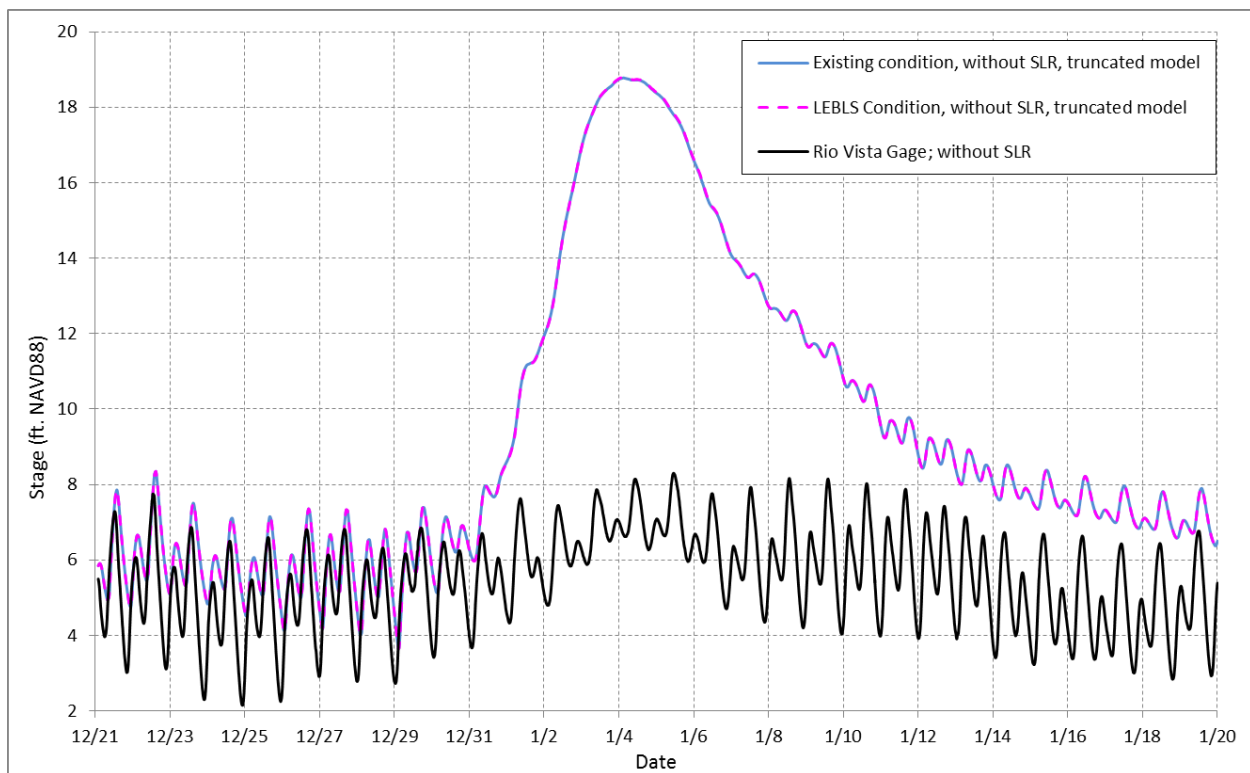


Figure 4. Effect of tidal influence on stage between Rio Vista Gage and d/s boundary of truncated model

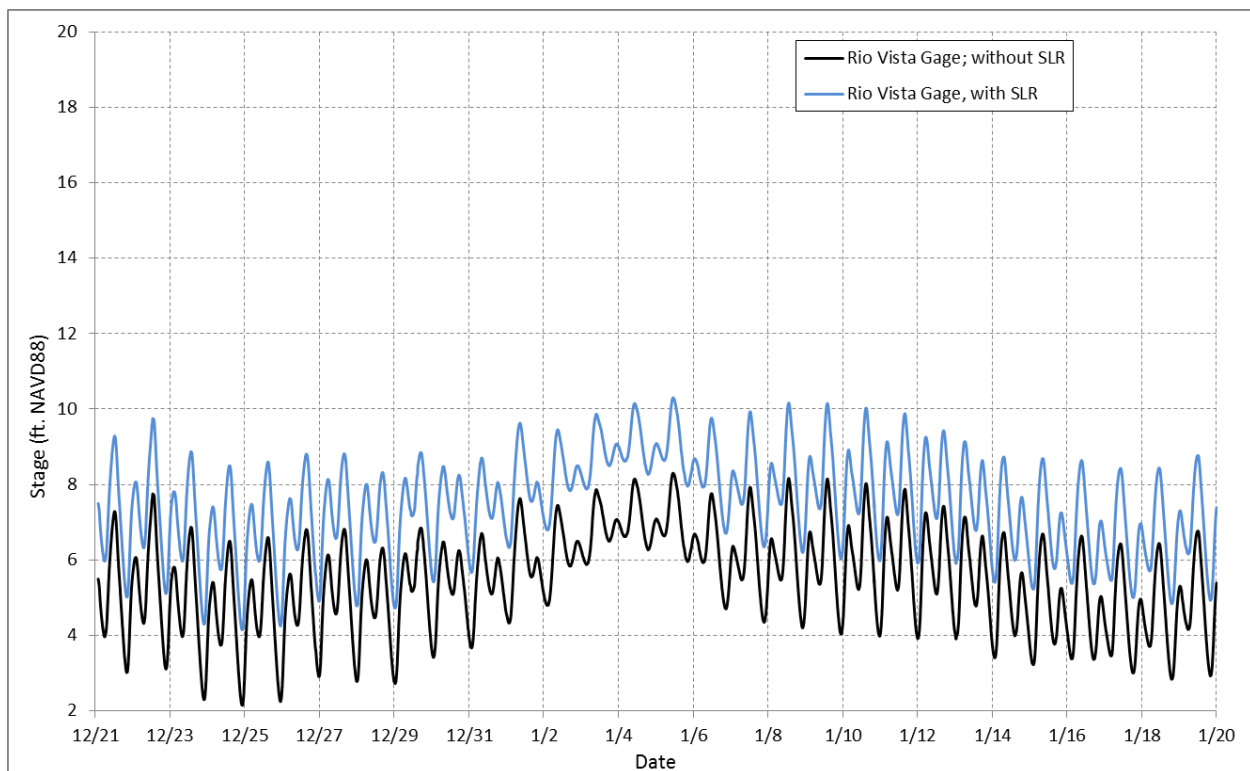


Figure 5. Effect of SLR on stage boundary condition at Rio Vista Gage

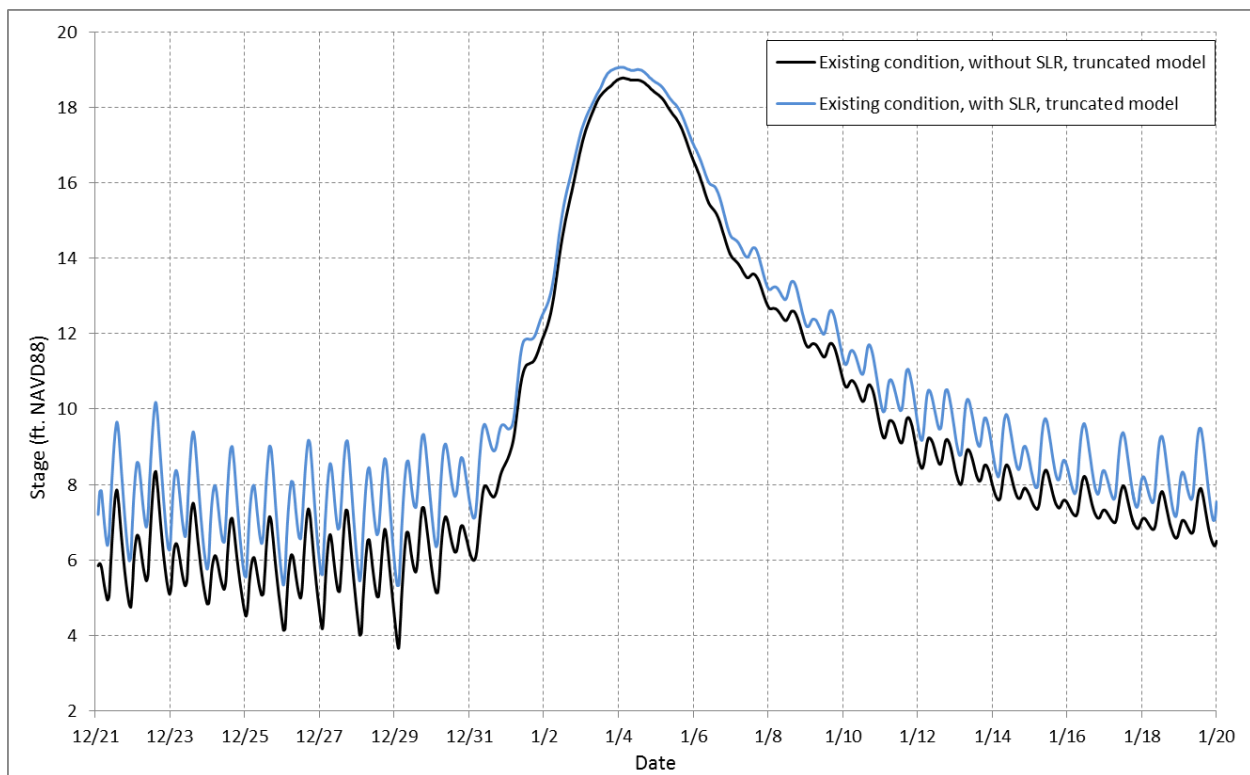


Figure 6. Effect of SLR on stage boundary condition at d/s boundary of truncated model for existing condition

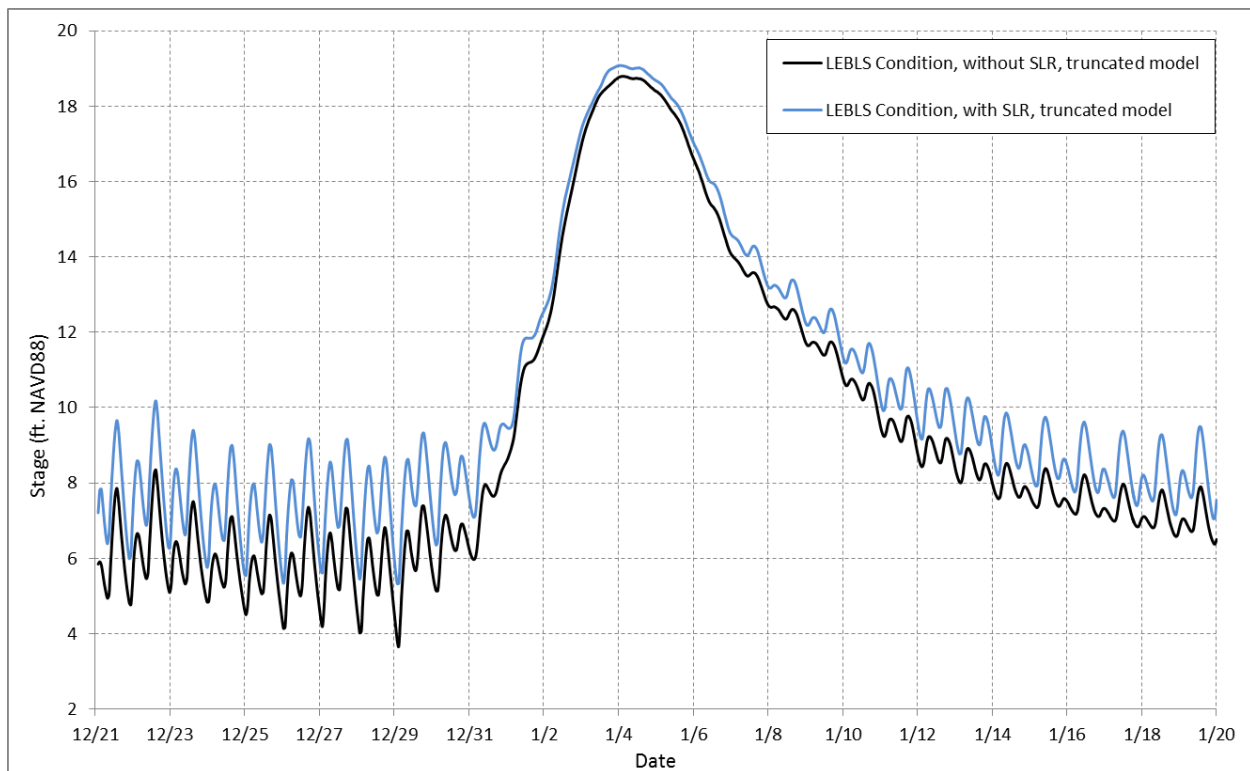


Figure 7. Effect of SLR on stage boundary condition at d/s boundary of truncated model for LEBLS Project condition

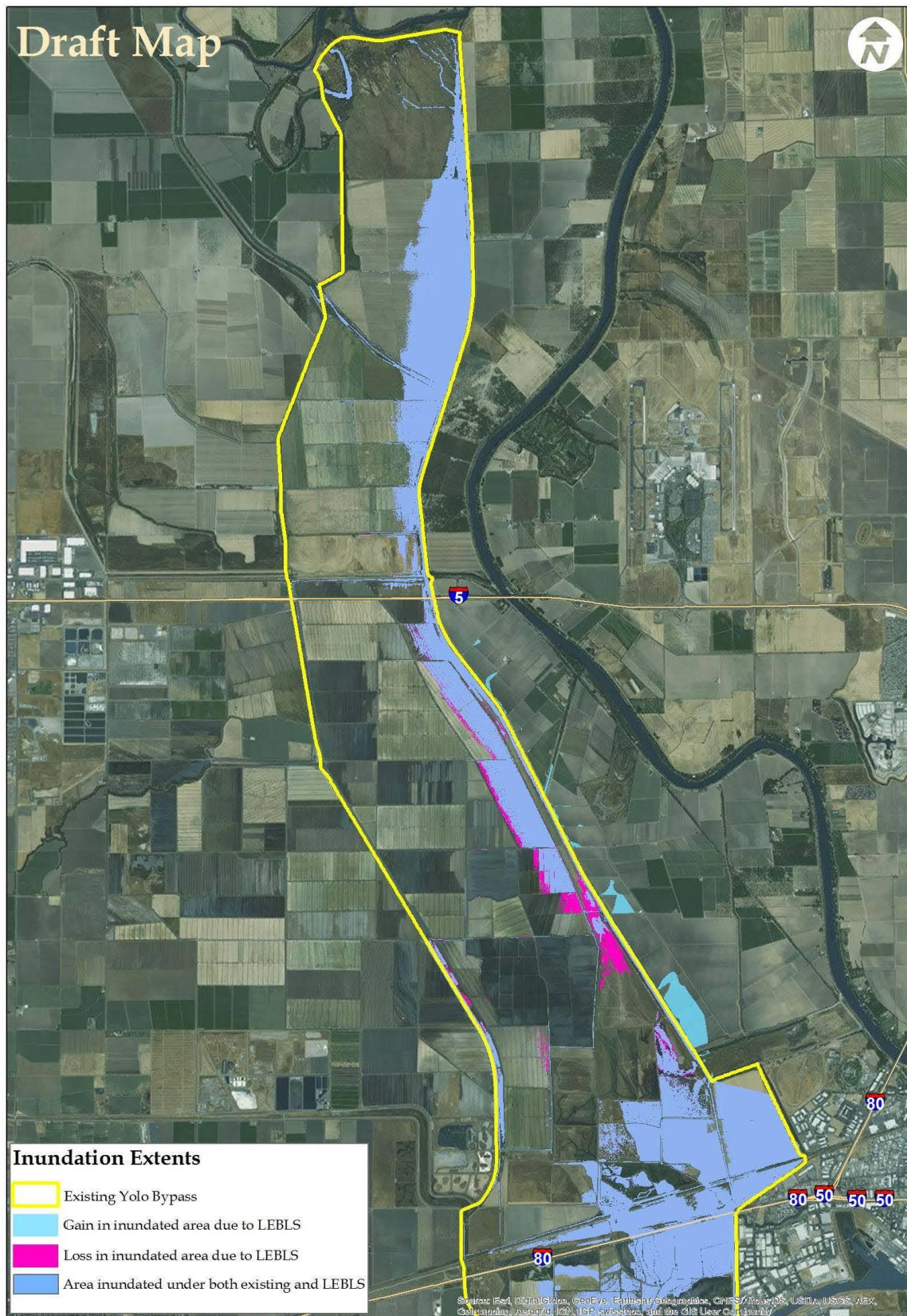


Figure 8. Impact of LEBLS project for 1000 cfs flow scenario due to YBSHRFP project

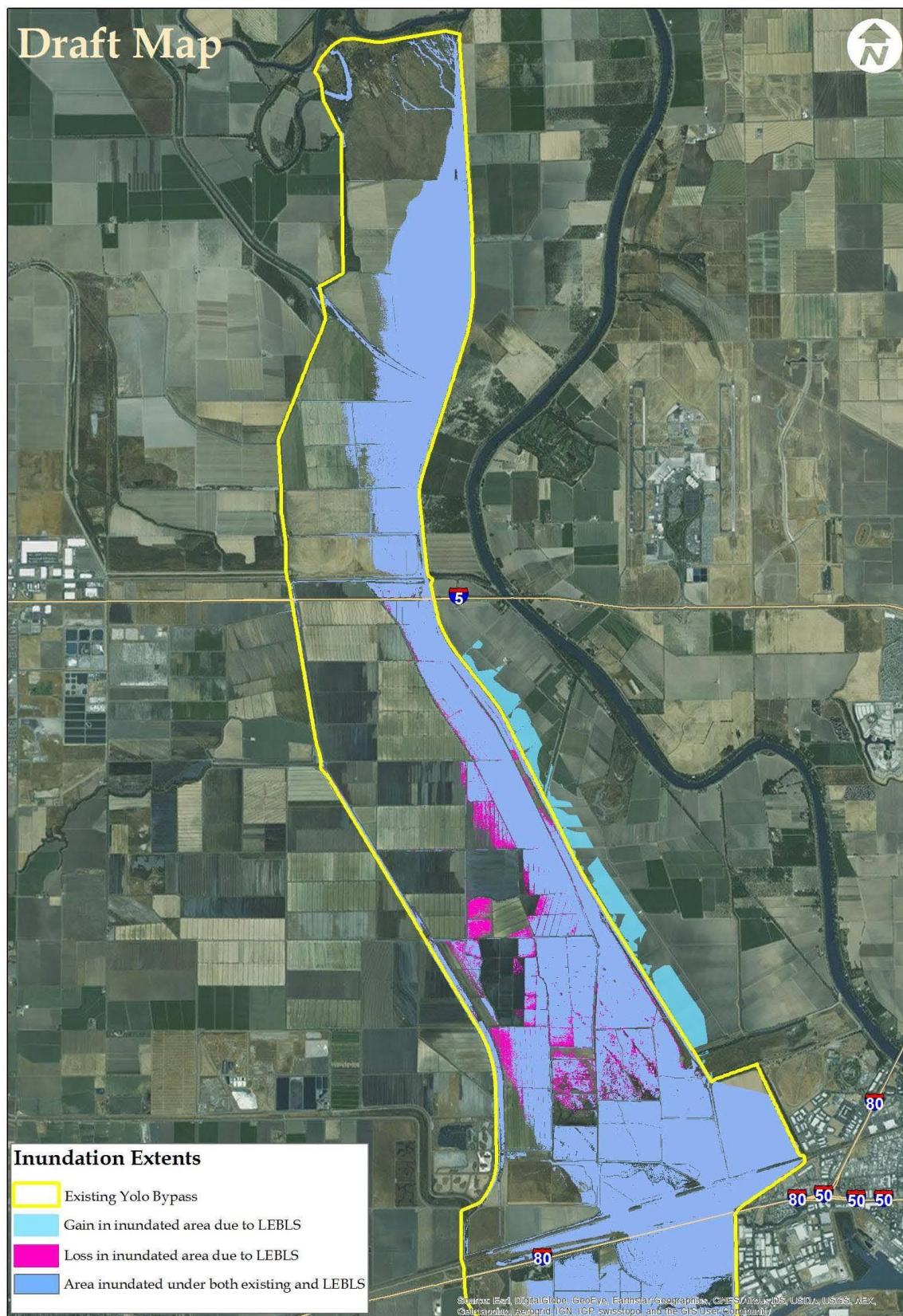


Figure 9. Impact of LEBLS project for 3000 cfs flow scenario due to YBSHRFP project

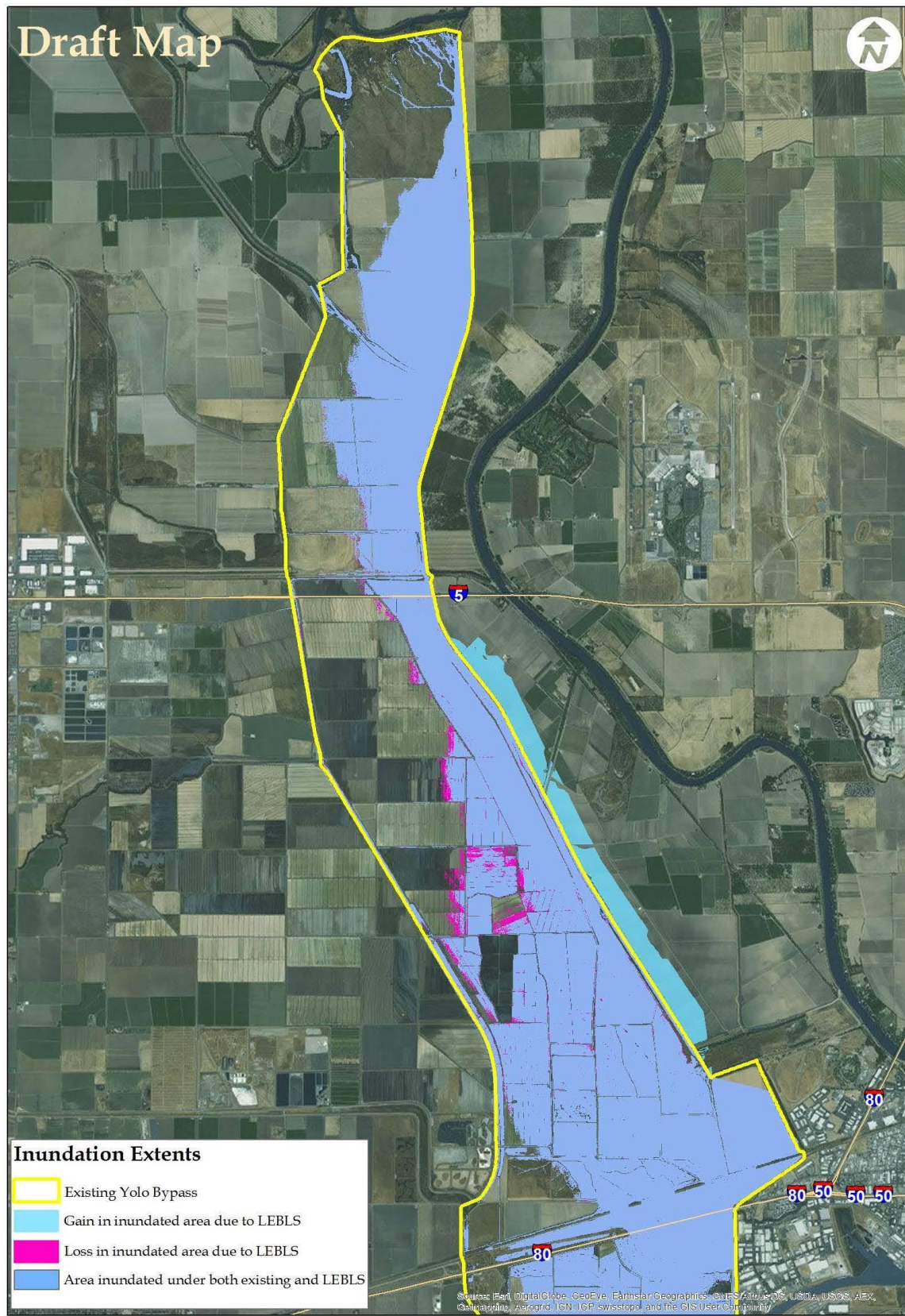
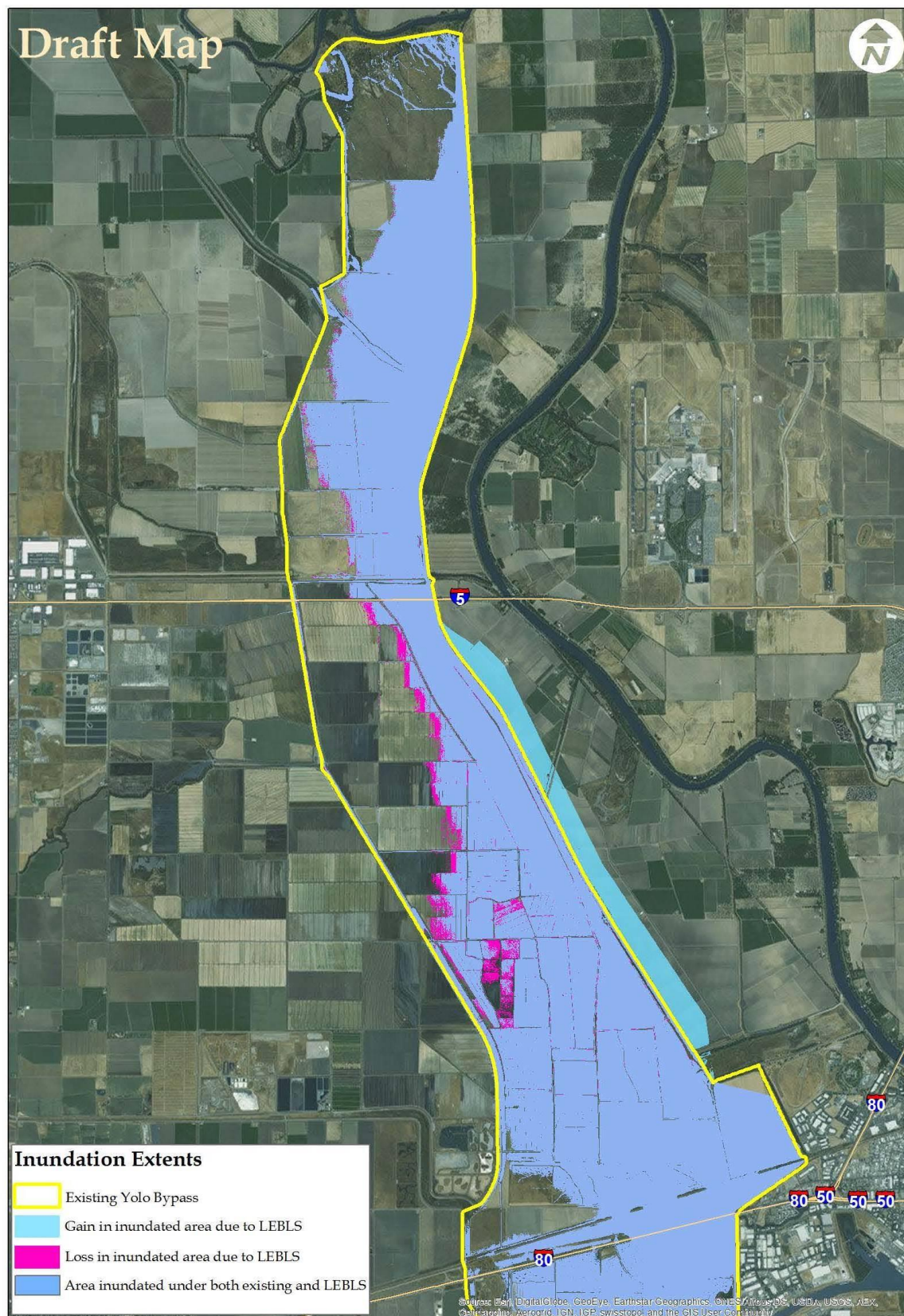


Figure 10. Impact of LEBLS project for 6000 cfs flow scenario due to YBSHRFP project



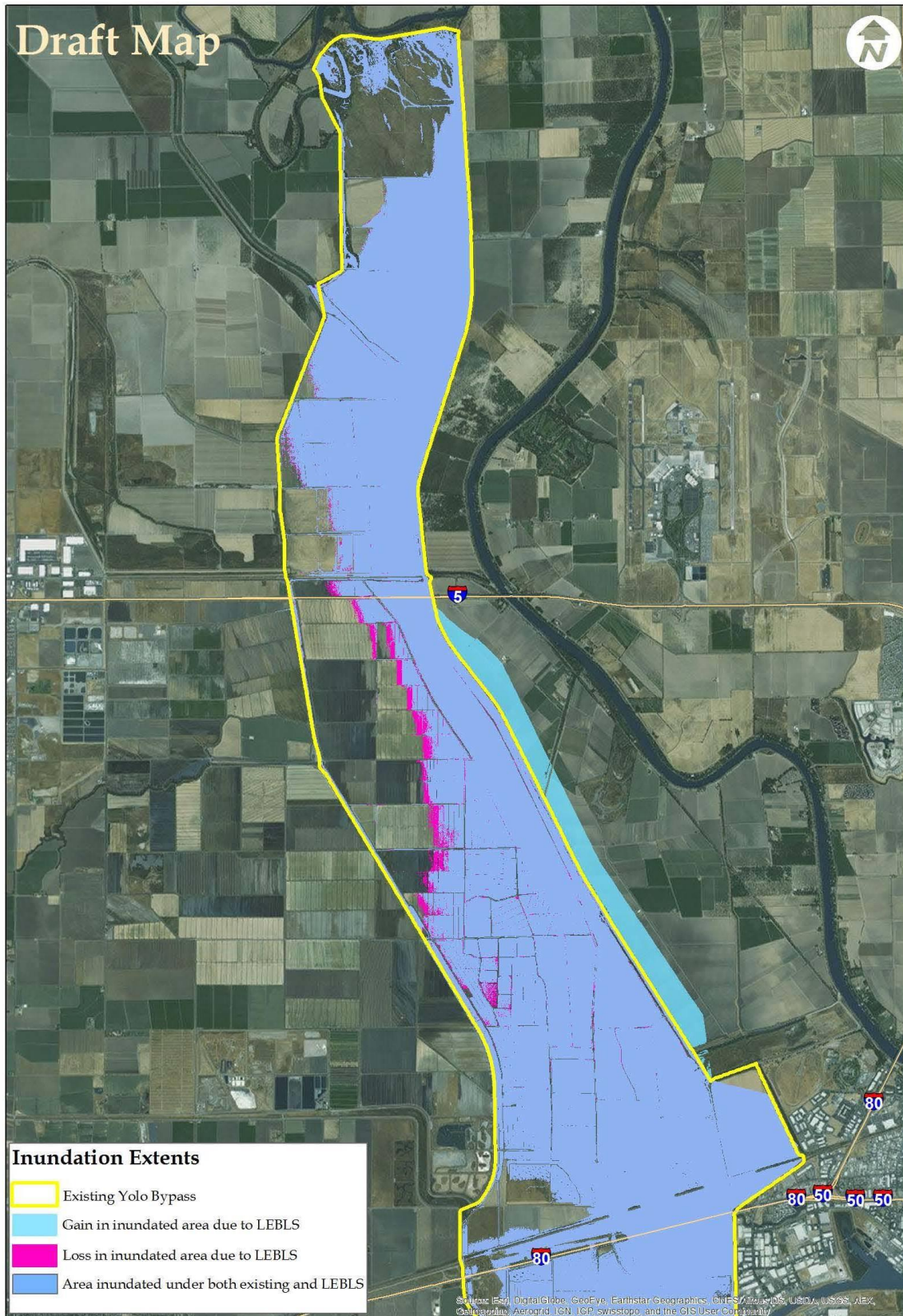


Figure 12. Impact of LEBLS project for 12000 cfs flow scenario due to YBSHRFP project

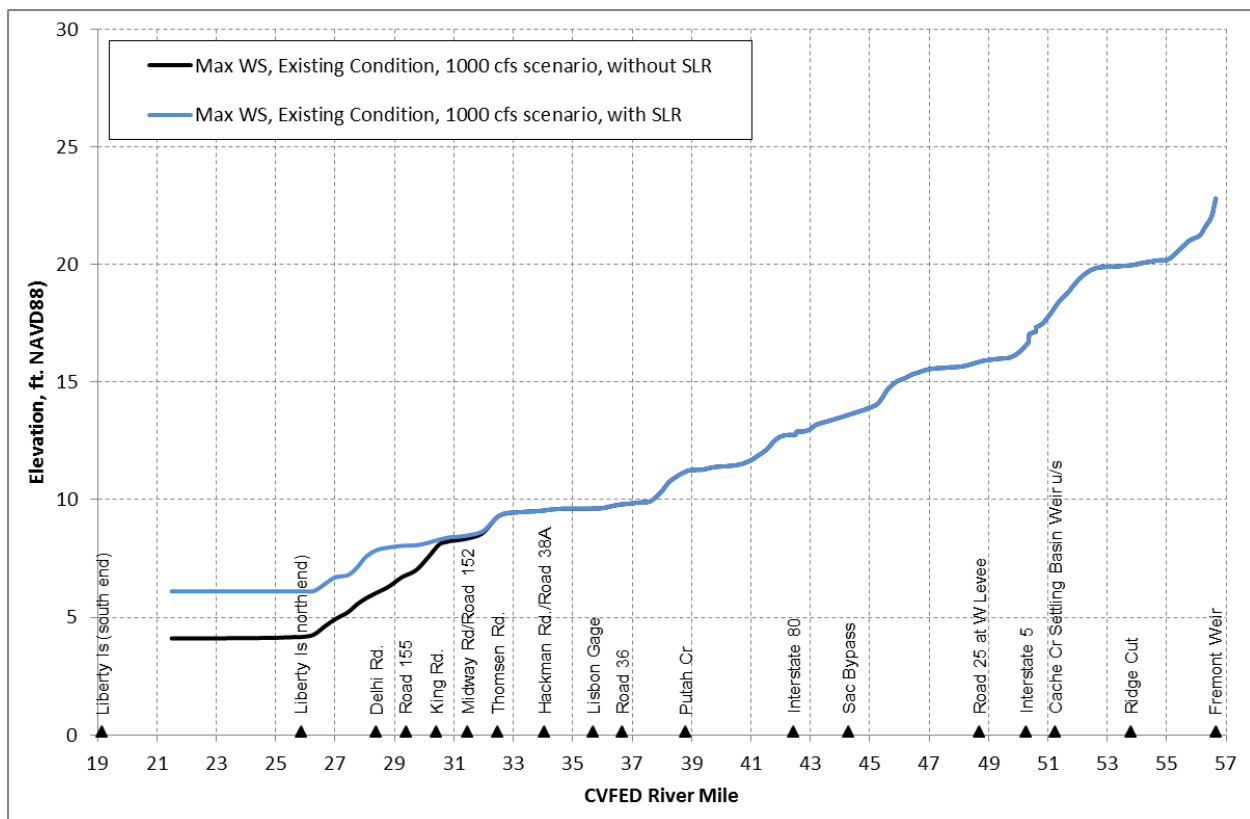


Figure 13. Impact of SLR on maximum WSE profile, 1000 cfs flow scenario due to YBSHRFP project, existing condition

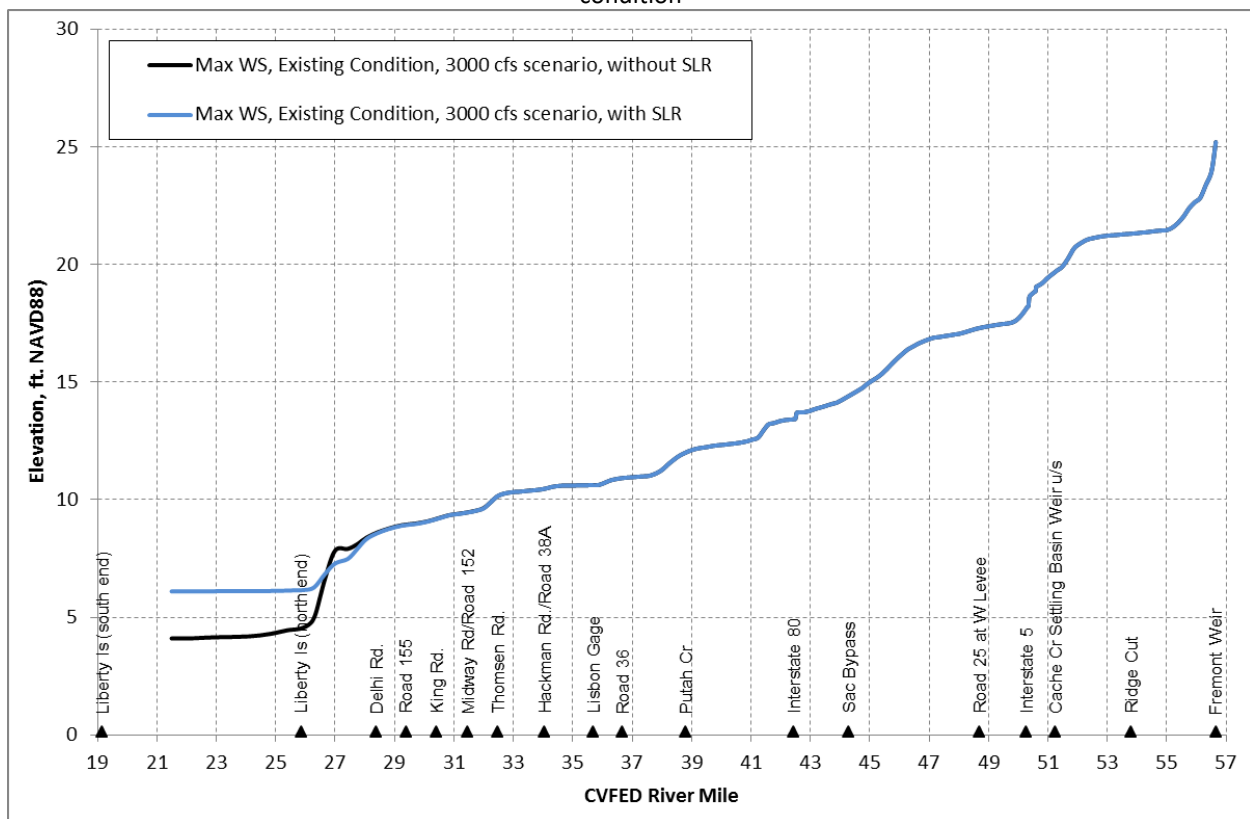


Figure 14. Impact of SLR on maximum WSE profile, 3000 cfs flow scenario due to YBSHRFP project, existing condition

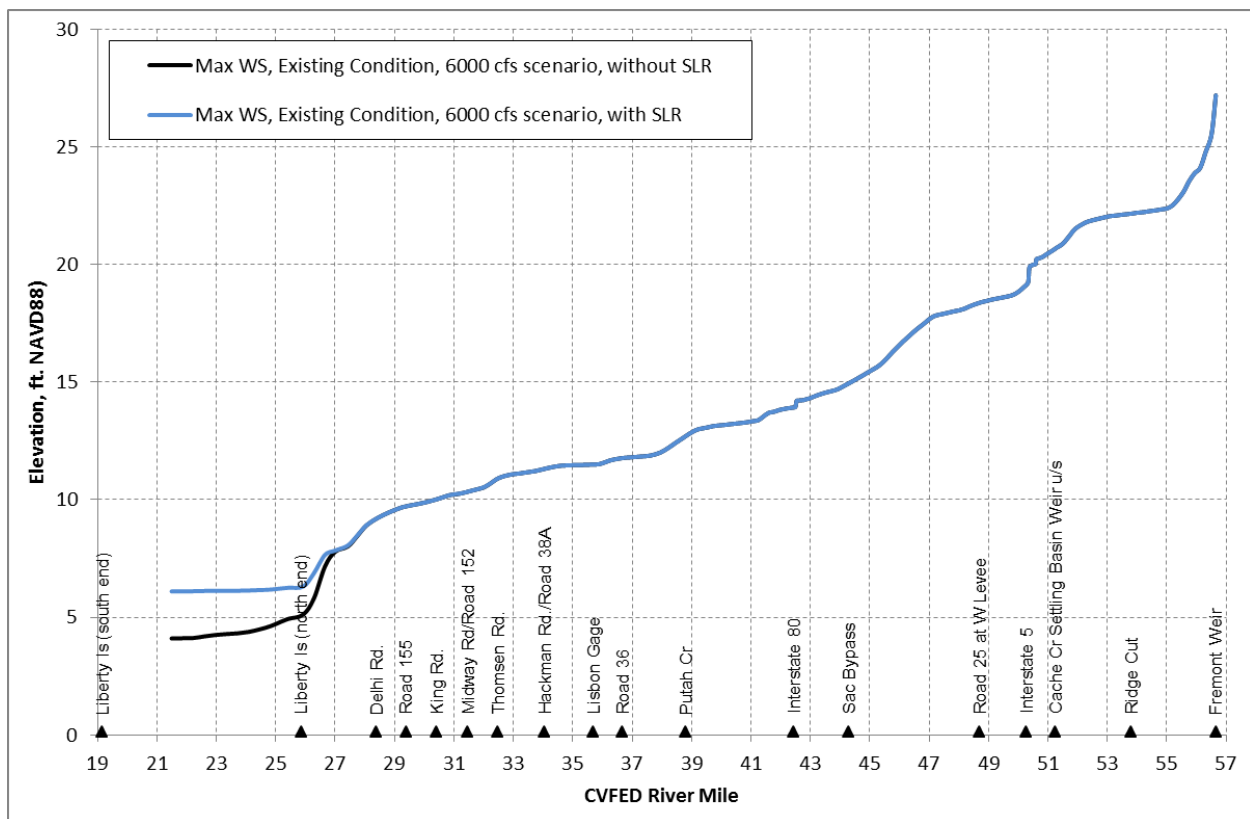


Figure 15. Impact of SLR on maximum WSE profile, 6000 cfs flow scenario due to YBSHRFP project, existing condition

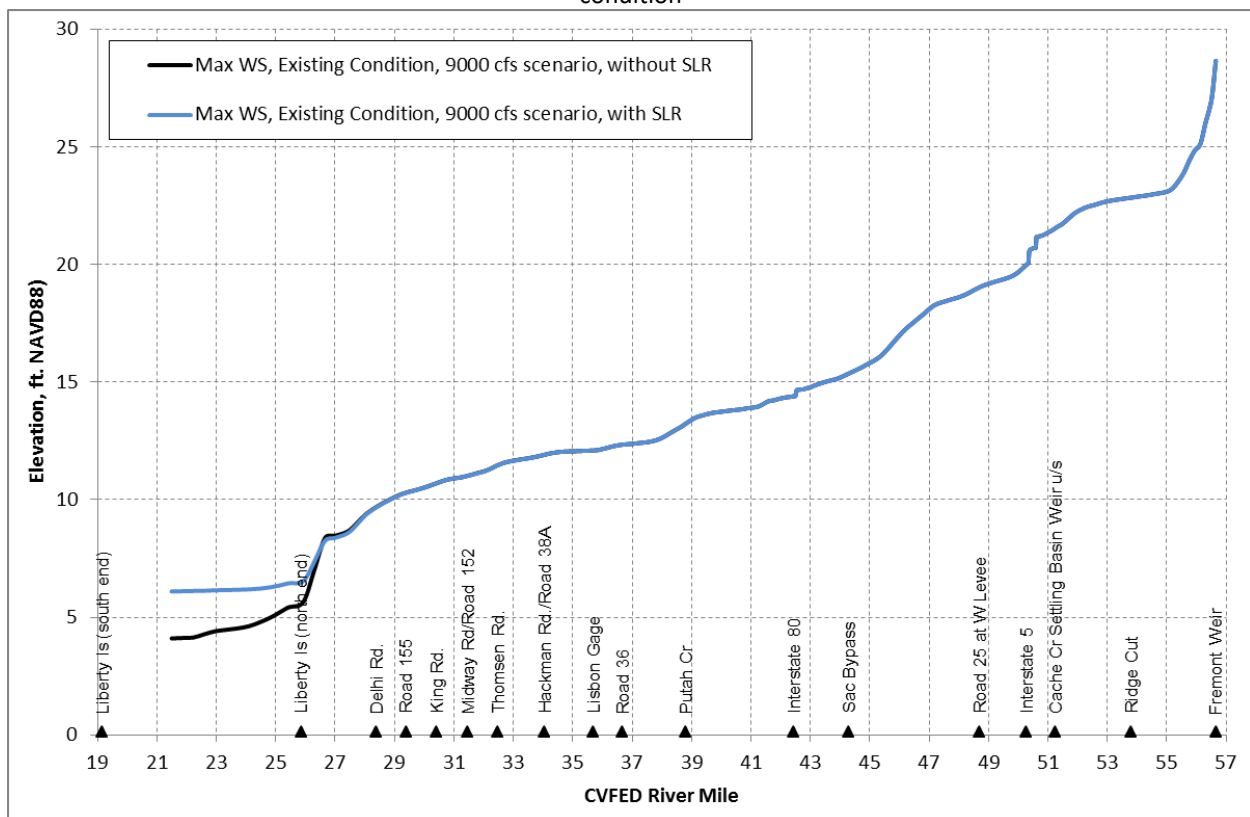


Figure 16. Impact of SLR on maximum WSE profile, 9000 cfs flow scenario due to YBSHRFP project, existing condition

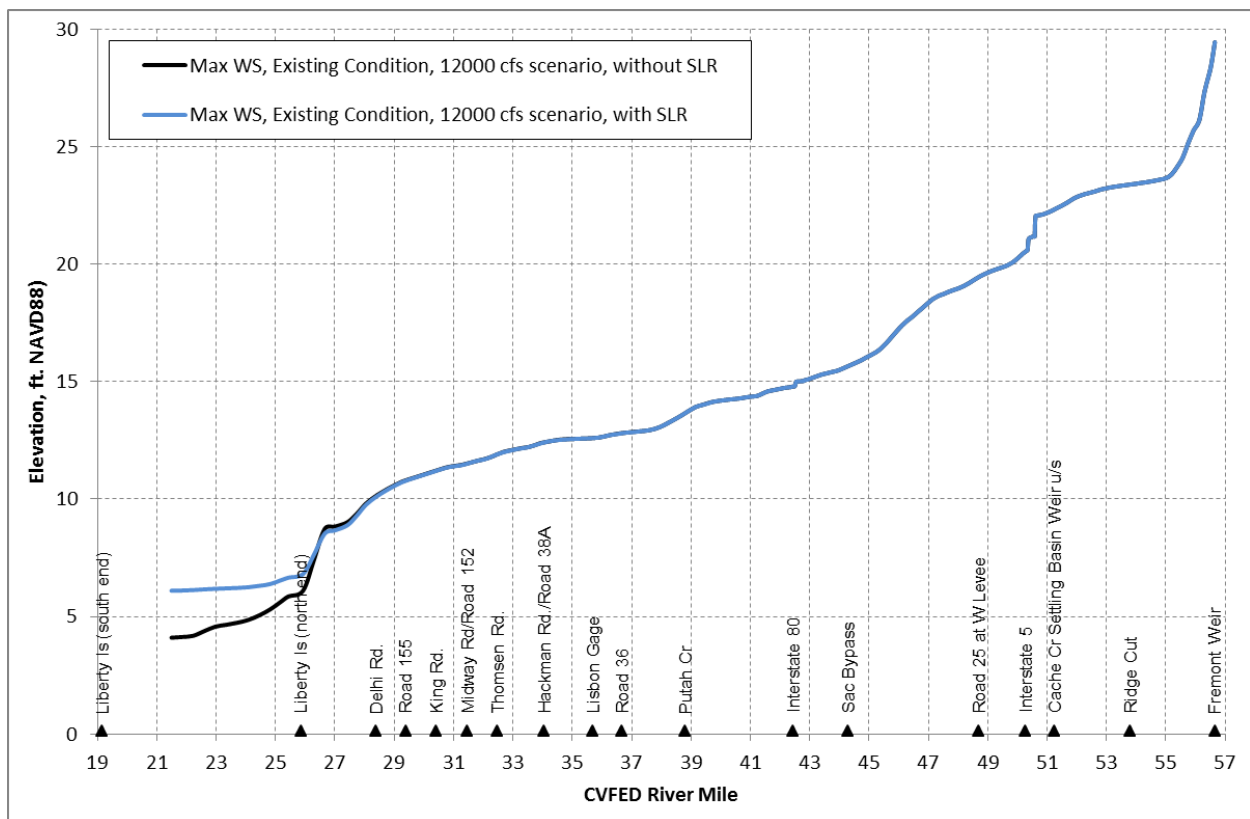


Figure 17. Impact of SLR on maximum WSE profile, 12000 cfs flow scenario due to YBSHRFP project, existing condition

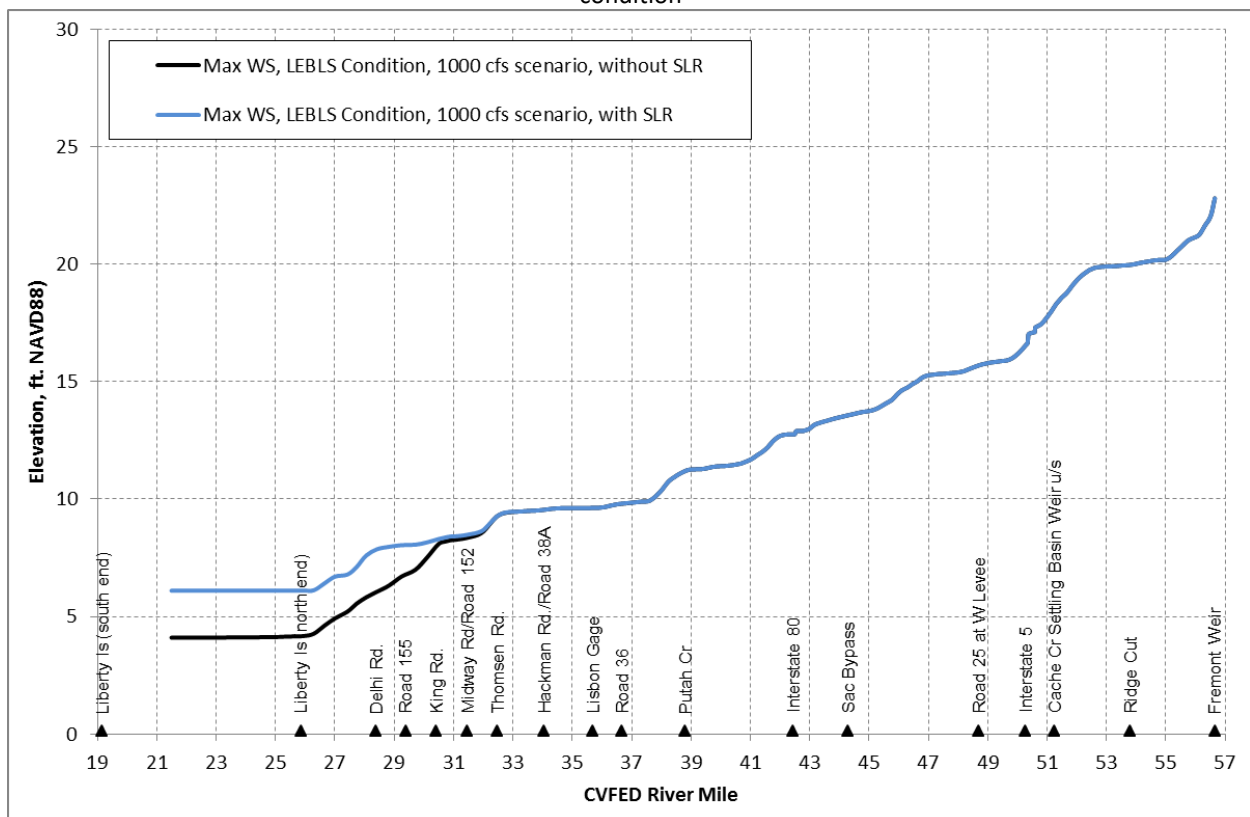


Figure 18. Impact of SLR on maximum WSE profile, 1000 cfs flow scenario due to YBSHRFP project, LEBLS project condition

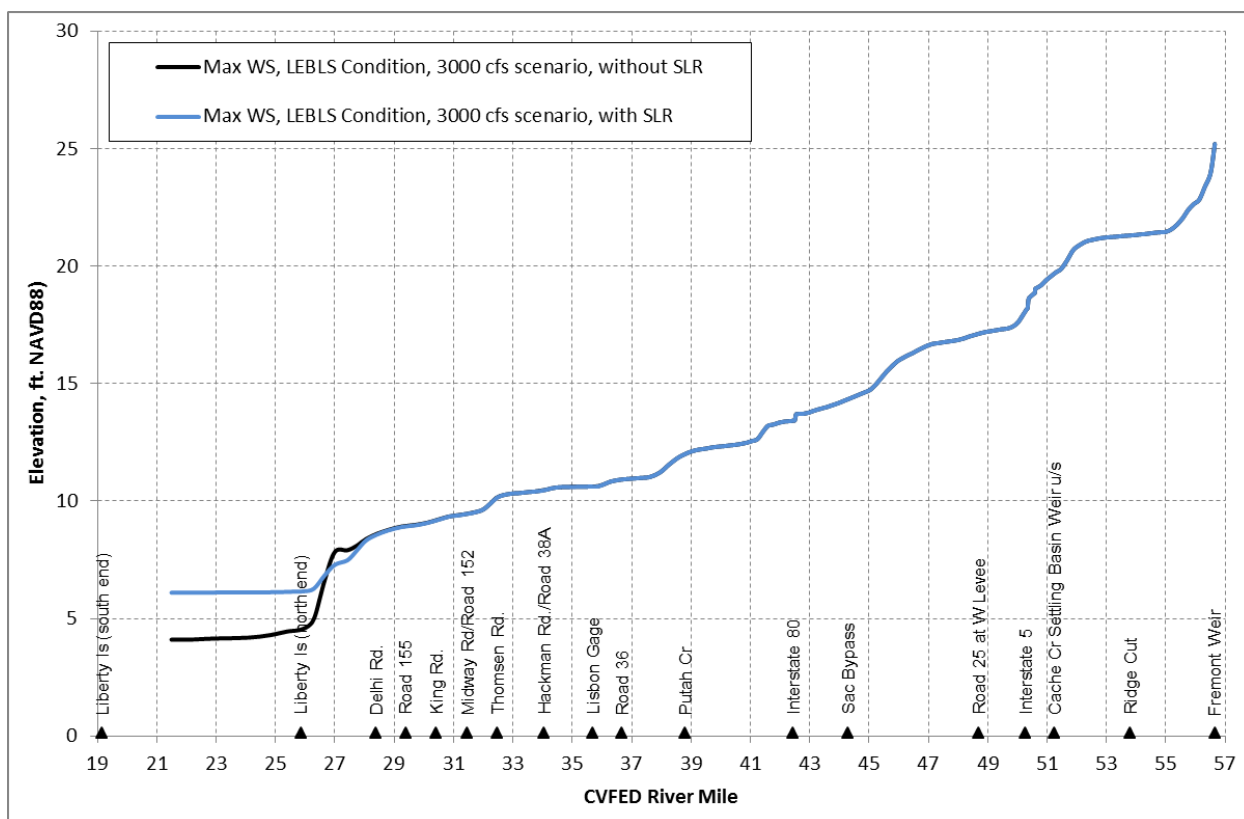


Figure 19. Impact of SLR on maximum WSE profile, 3000 cfs flow scenario due to YBSHRFP project, LEBLS project condition

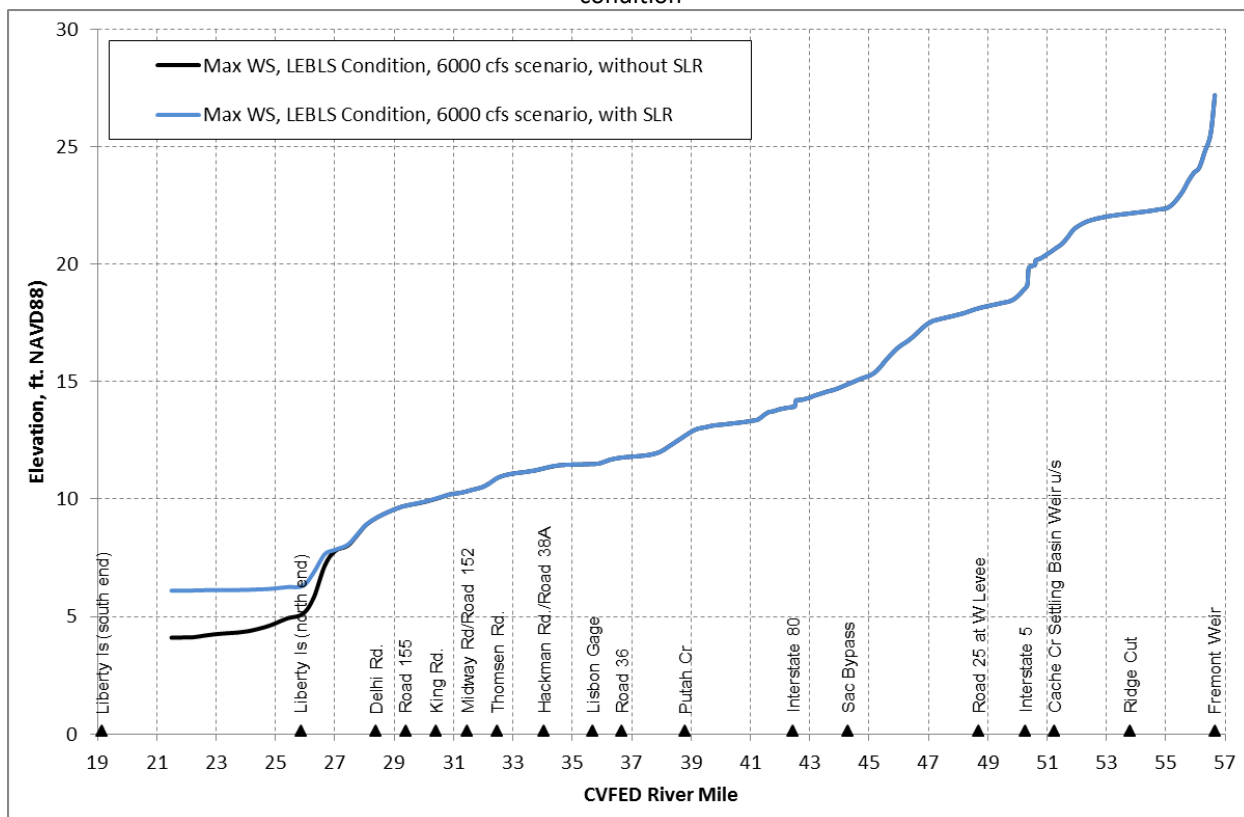


Figure 20. Impact of SLR on maximum WSE profile, 6000 cfs flow scenario due to YBSHRFP project, LEBLS project condition

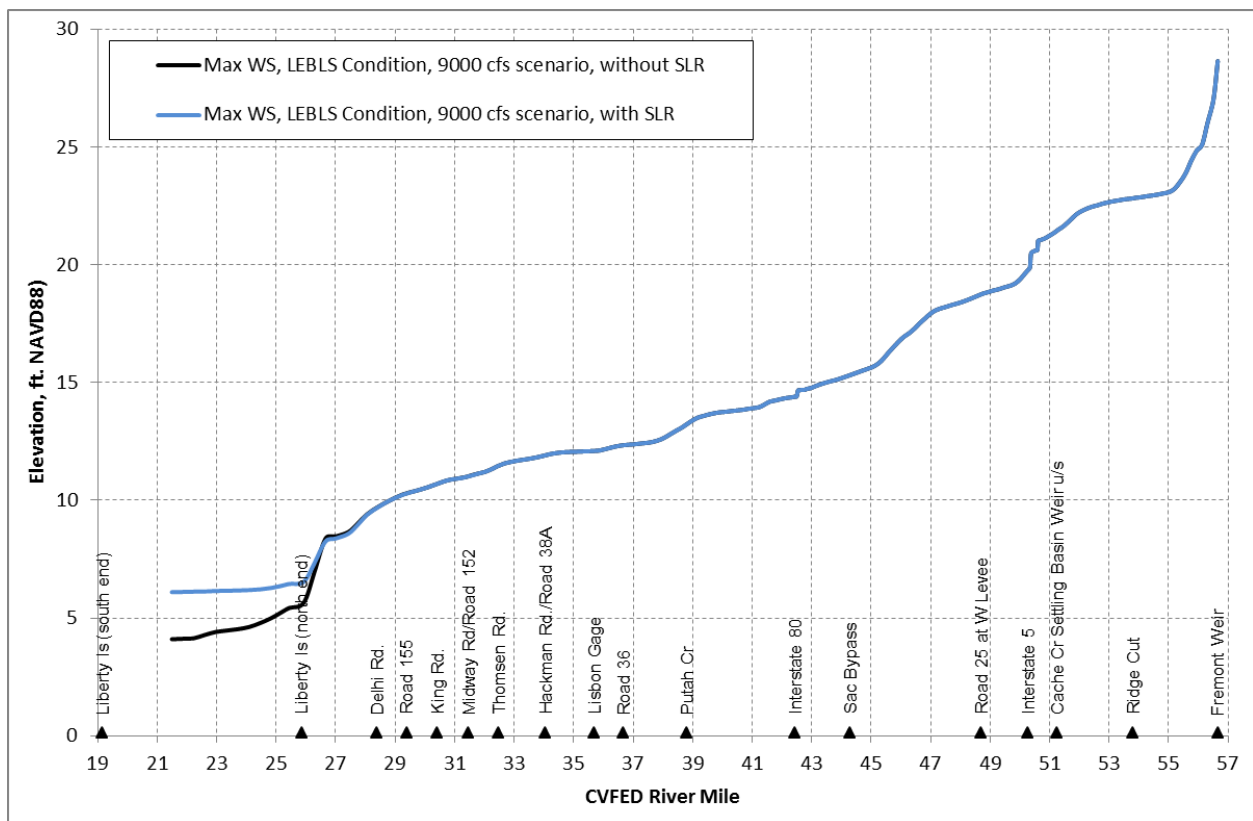


Figure 21. Impact of SLR on maximum WSE profile, 9000 cfs flow scenario due to YBSHRFP project, LEBLS project condition

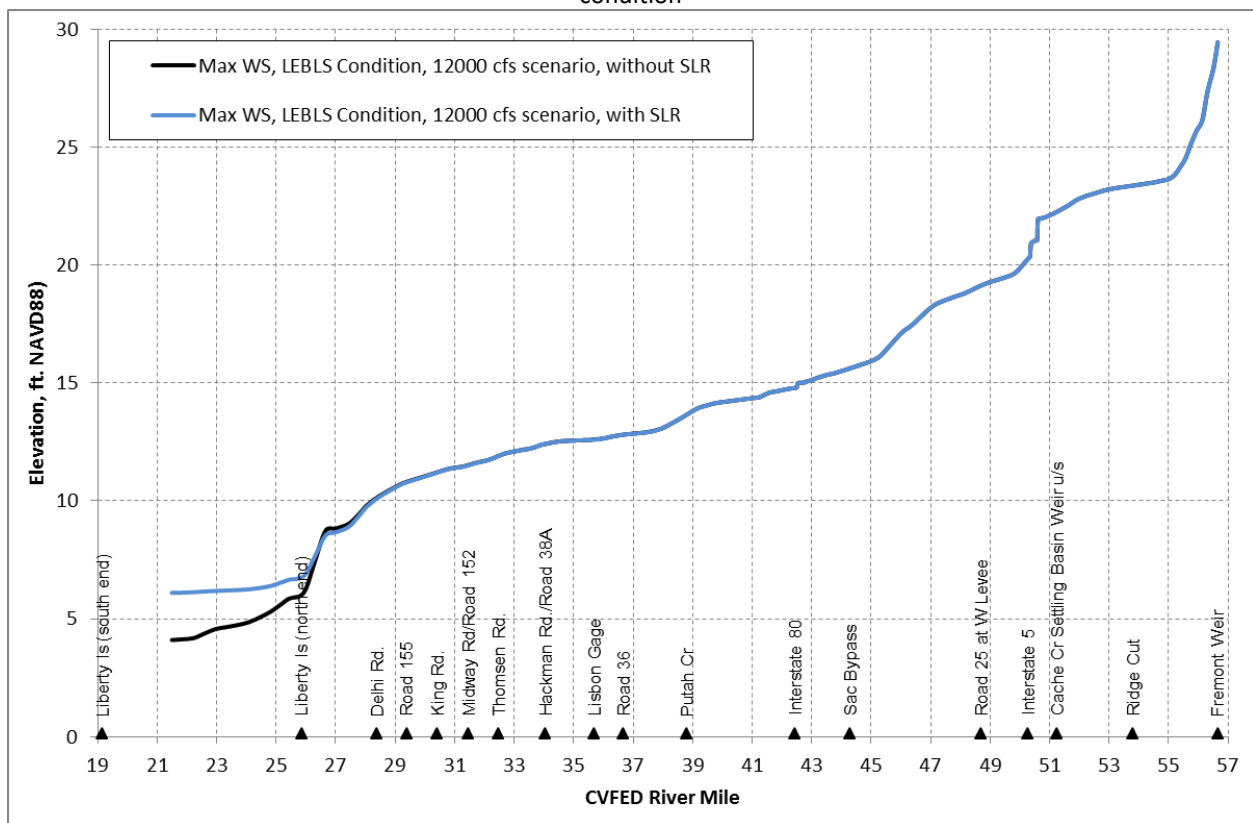


Figure 22. Impact of SLR on maximum WSE profile, 12000 cfs flow scenario due to YBSHRFP project, LEBLS project condition

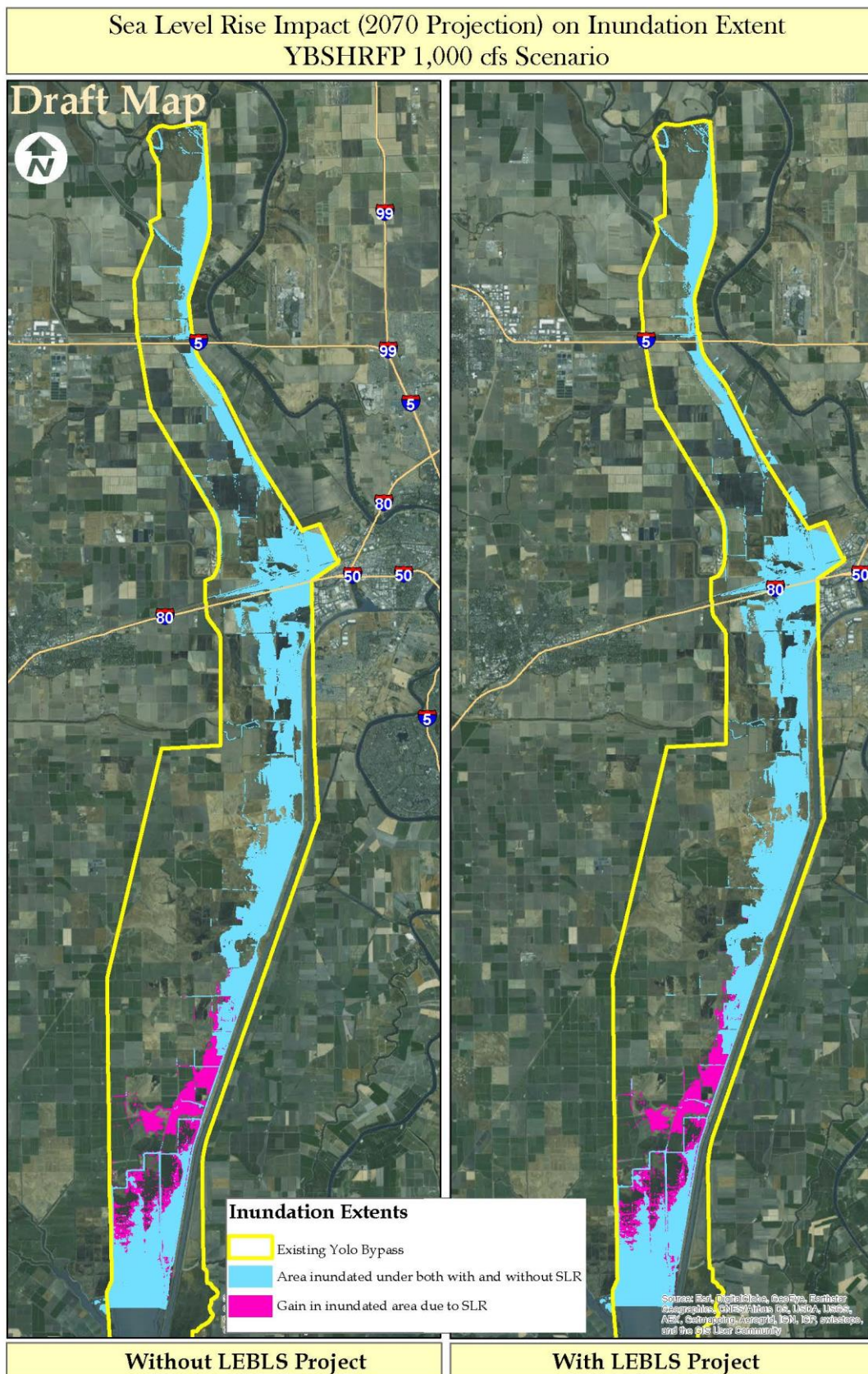


Figure 23. Impact of SLR on inundation extent for 1,000 cfs flow scenario due to YBSHRFP project

Draft Map

Inundation Extents

- Existing Yolo Bypass
- Area inundated under both with and without SLR
- Gain in inundated area due to SLR

Without LEBLS Project

With LEBLS Project

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, AeroGRID, IGN, SRTM, and the U.S. Navy Hydrographic Survey

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Draft Map

Inundation Extents

- Existing Yolo Bypass
- Area inundated under both with and without SLR
- Gain in inundated area due to SLR

Without LEBLS Project **With LEBLS Project**

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, AeroGRID, IGN, SRTM, and the U.S. Coast Guard

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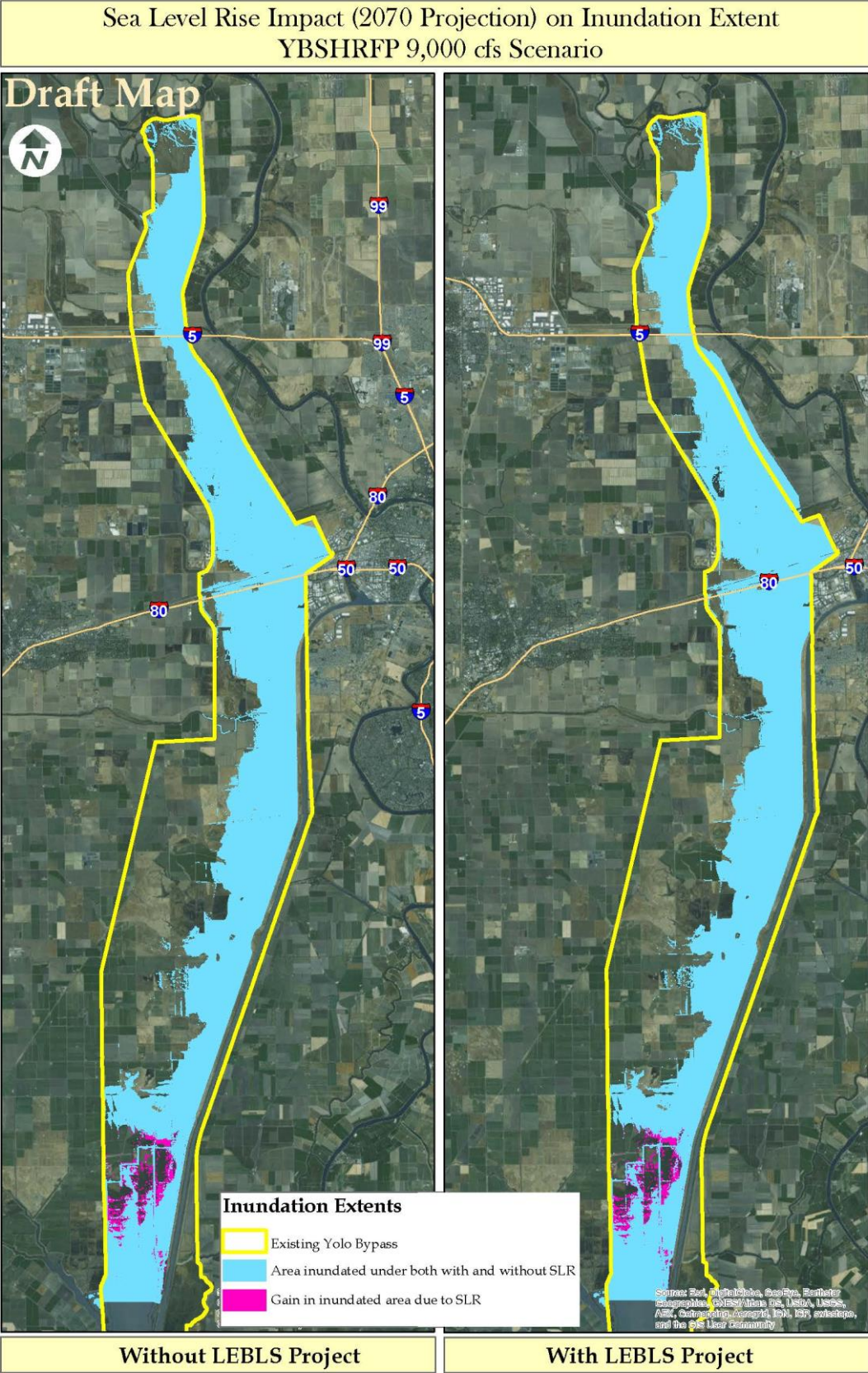


Figure 26. Impact of SLR on inundation extent for 9,000 cfs flow scenario due to YBSHRFP project

Draft Map

Inundation Extents

- Existing Yolo Bypass
- Area inundated under both with and without SLR
- Gain in inundated area due to SLR

Source: E&J DigitalData, Google Earth, Esri, and the U.S. Army Corps of Engineers, and the 9th Local Community

Without LEBLS Project

With LEBLS Project

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**United States Department of the Interior
U. S. GEOLOGICAL SURVEY**

**Western Fisheries Research Center
Columbia River Research Lab
5501-A Cook-Underwood Rd
Cook, WA 98605**

12 December 2018

To:

Joshua Israel, PhD
Chief, Science Division
Bay-Delta Office
Bureau of Reclamation
Sacramento, CA 95814

Subject: Simulating through-Delta survival for Freemont Weir Notch Scenarios

Dear Josh:

Recently, you and Josh Martinez (CA Department of Water Resources) expressed interest using the Delta STARS model (Survival Travel time and Routing Simulation) to understand the potential effects of Freemont Weir notch configurations on survival of juvenile salmon smolts in the Sacramento River downstream of Freemont Weir. One limitation with using the model for this purpose is that the STARS model simulates survival between Freeport and Chipps Island whereas the region of interest for this question begins just downstream of the Freemont Weir, near the mouth of the Feather River. The primary concern is that using the STARS model “as is” would not account for travel time nor survival in the Sacramento River between the Feather River and Freeport.

Because this other projects have also expressed interest in modeling through-Delta survival from the point at which Yolo Bypass diverges from the Sacramento River (SIT decision support model, SWFSC Centrall Valley Life Cycle Model, SAC PAS), we re-fit the Bayesian survival model on which STARS is based (see Perry et al. (2018): <http://www.nrcresearchpress.com/doi/abs/10.1139/cjfas-2017-0310>). The original model of Perry et al. (2018) included a subset of tagged fish detected at an acoustic telemetry station in the Sacramento River just downstream of the mouth of the Feather River. However, because our primary area of focus was between Freeport and Chipps Island, the model did not estimate unique flow-survival and flow-travel time relationship for fish detected at the Feather River. Therefore, for this analysis and others we re-fit the Bayesian survival model using the same exact data set as used in Perry et al. (2018) to estimate survival and travel time relationships for the Sacramento River between the mouth of the Feather River and Freeport. We also verified that this slight modification had no effect on the other parameters in the model reported by Perry et al. (2018). Below, I include figures showing the new survival and travel time relationships for this reach and how they influence the overall travel time and survival relationship relative to those reported in Perry et al. (2018).

To simulate survival for the Freemont Weir notch scenarios (“Existing” and “Alt01”), I ran the STARS model for daily simulated flows between 1991 and 2016. Since the STARS model also requires DCC gate position as a covariate, I used the timeseries of historical gate operations for both scenarios. For each day of the simulation, I “released” 1000 fish at the Feather River and then simulated each daily cohort’s reach-specific survival and travel time through the Delta. I then summarized total survival through the Delta for each cohort and compared the daily survival between scenarios. Further details on the STARS model can be found here:
<https://oceanview.pfeg.noaa.gov/shiny/FED/CalFishTrack/>.

Please find enclosed a document with figures showing simulated river flows for each scenario, daily survival between the Feather River and Chipps Island for each scenario, and the difference in survival between scenarios. Overall, the STARS simulations showed that differences in survival of daily cohorts were small (<2.5 percentage points between scenarios) because either 1) there was no difference in Sacramento River flows between scenarios (e.g., 1991 – 1996), or 2) differences between scenarios occurred during high river discharge when the change in survival is expected to be small.

Please do not hesitate to contact me if you have any questions about this analysis.

Sincerely,



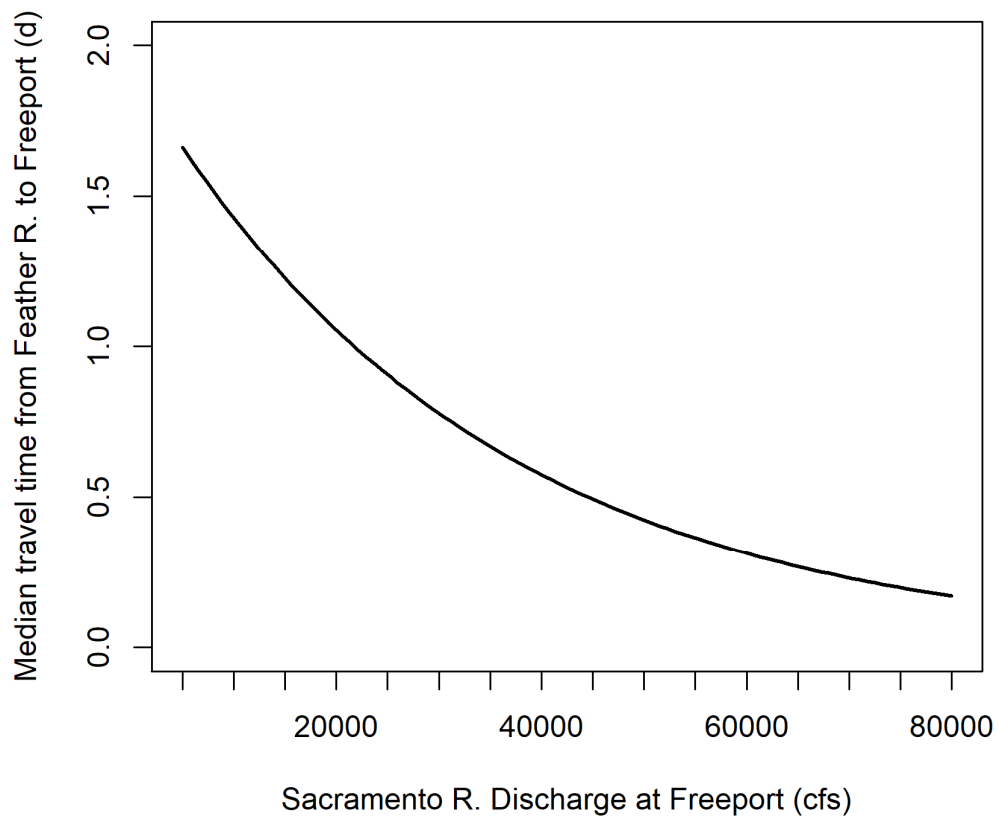
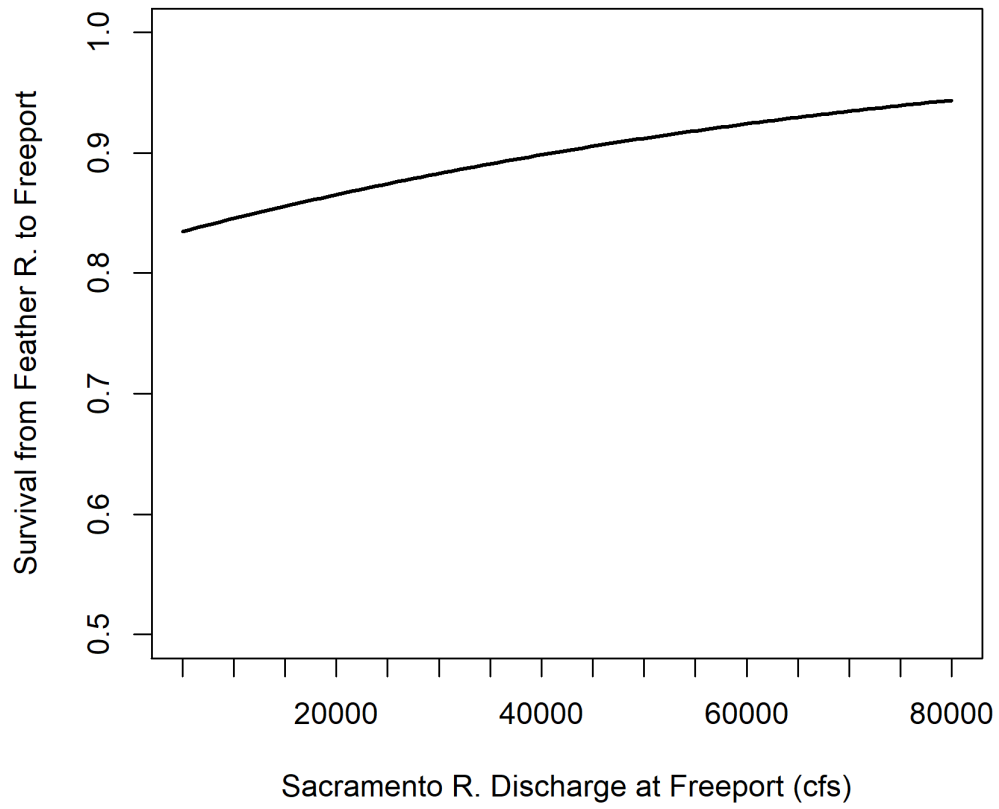
Russell W. Perry
Research Fishery Biologist

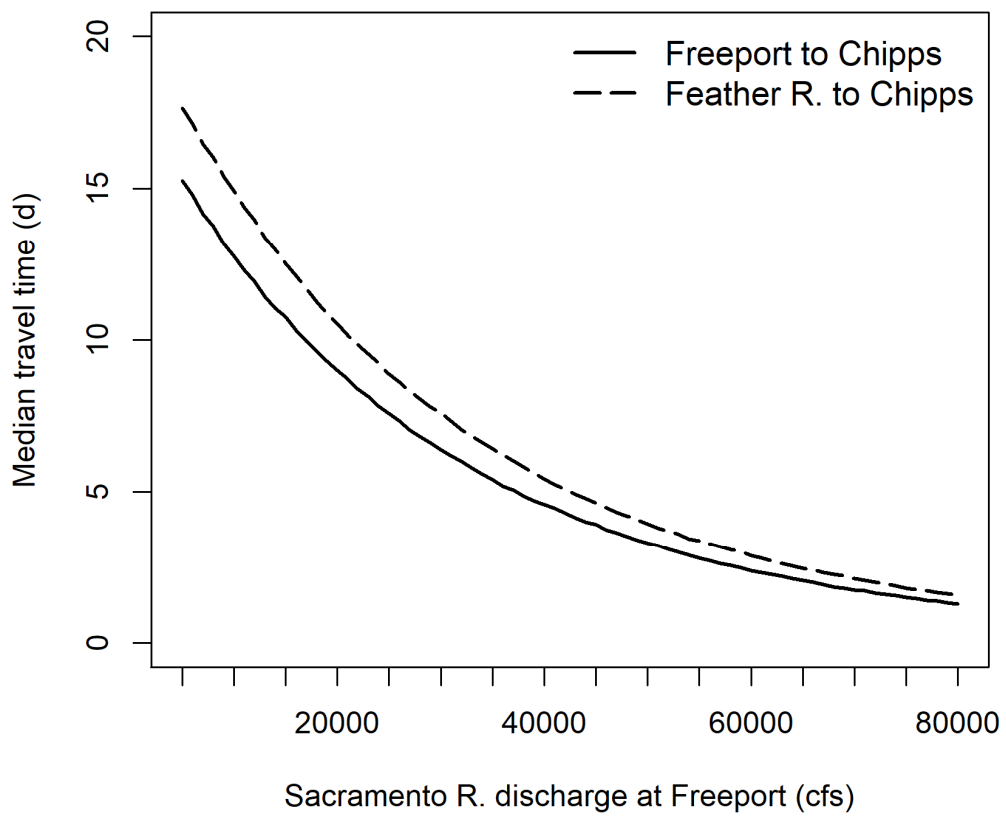
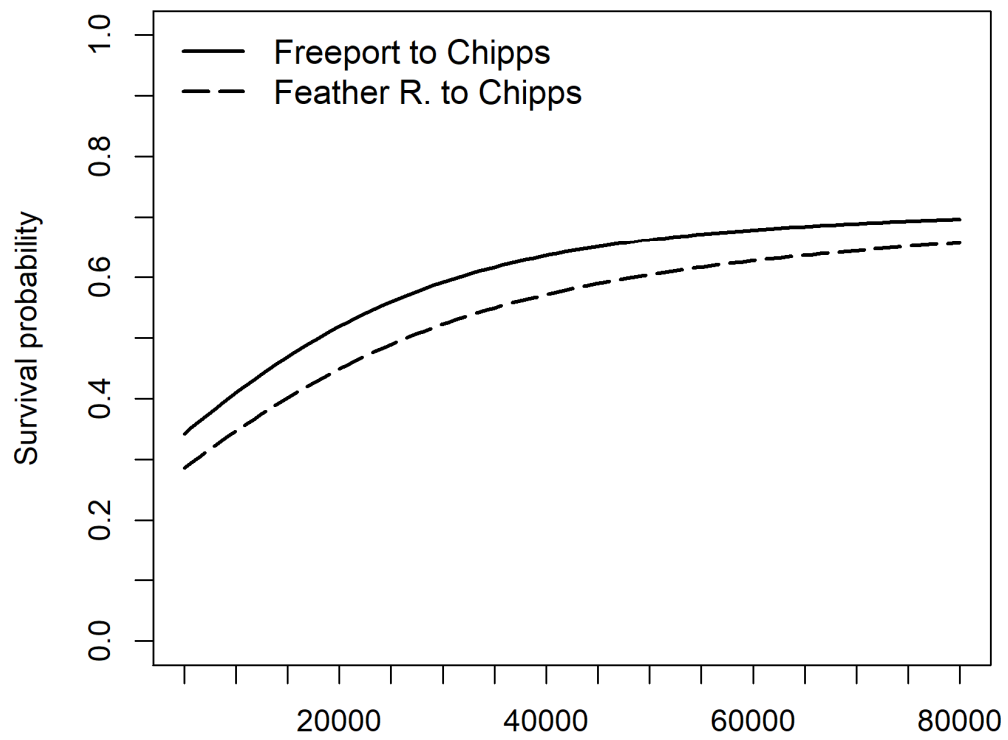
Date: 12 December 2018

Enclosed:

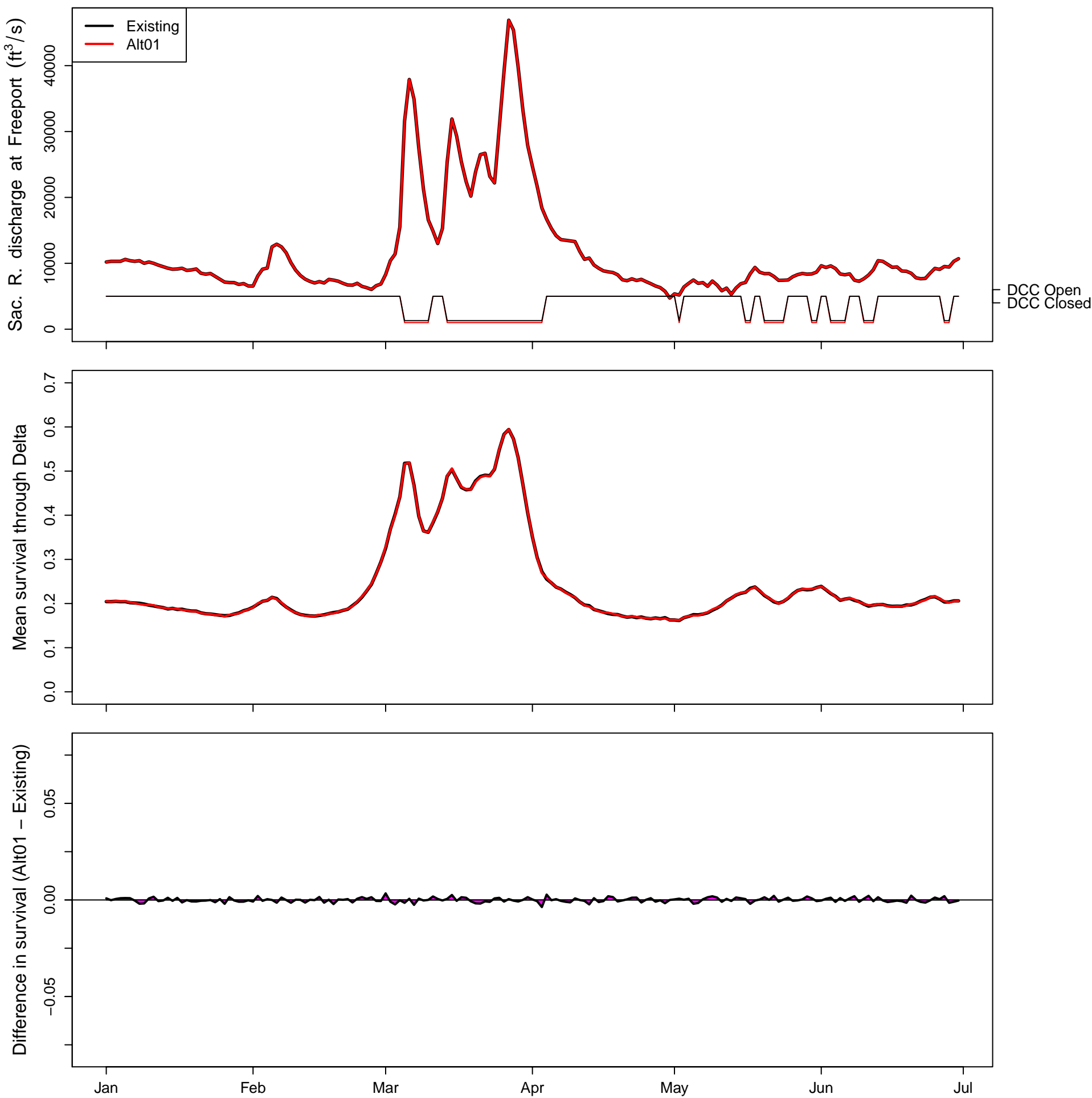
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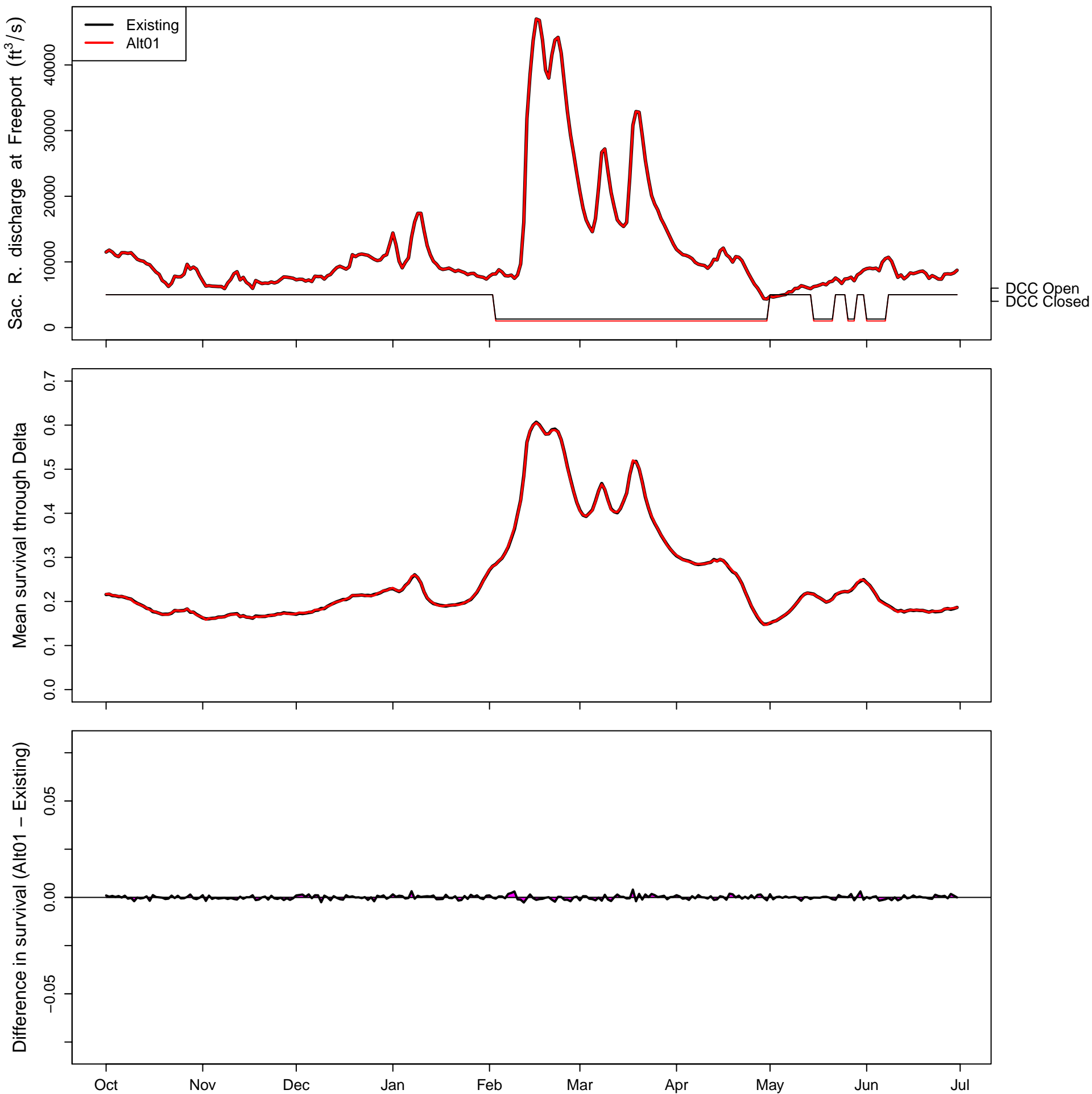




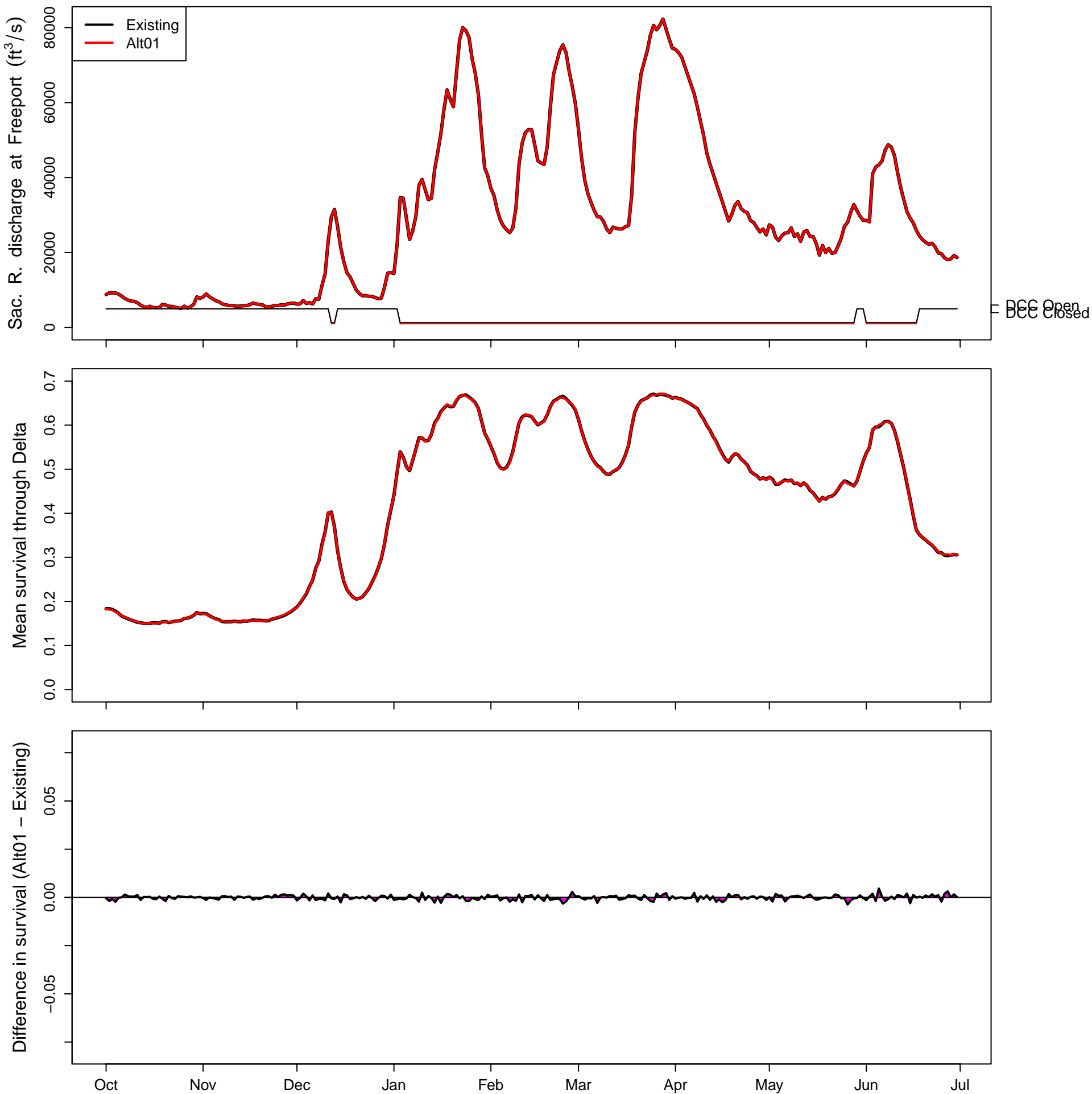
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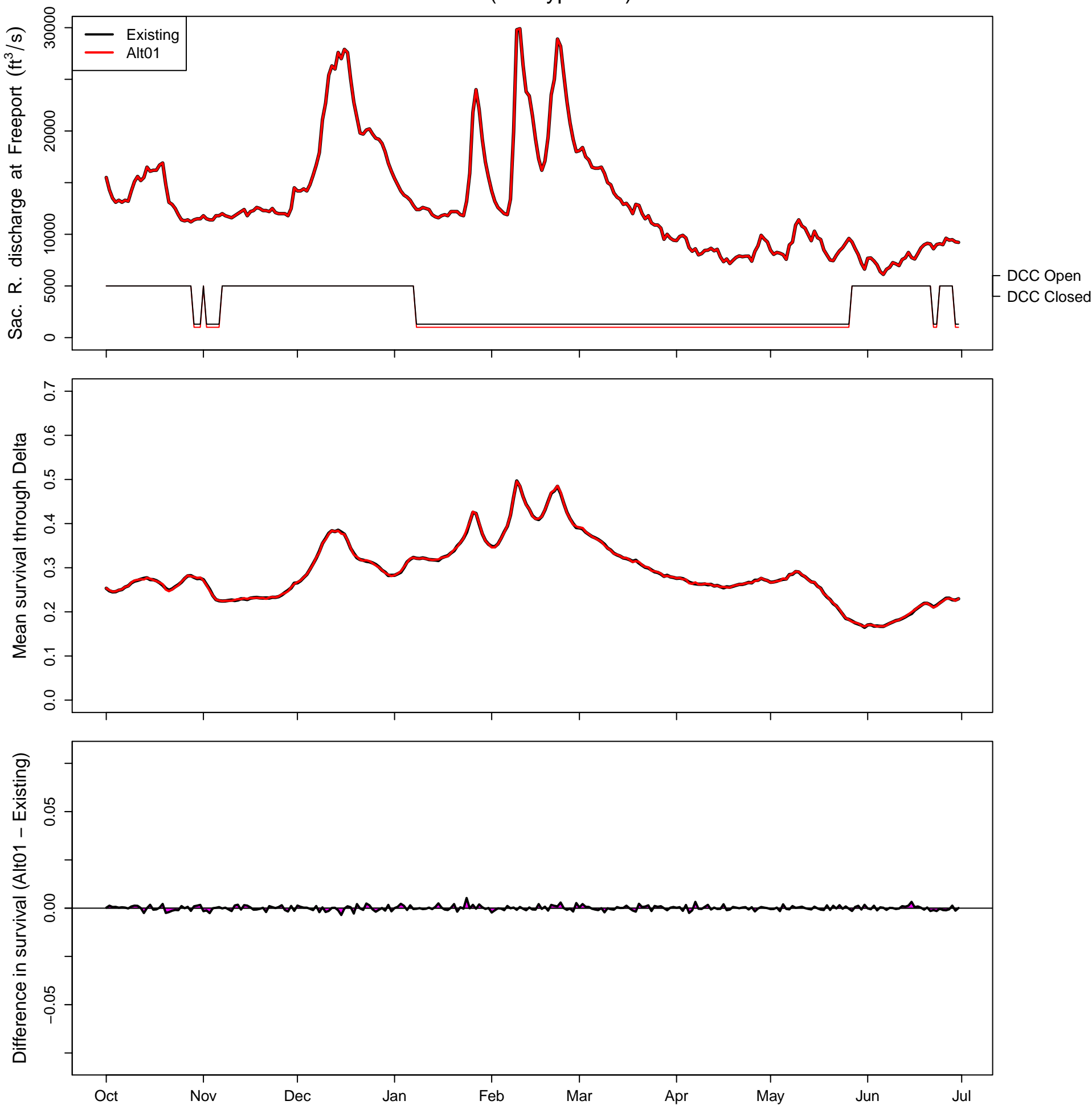
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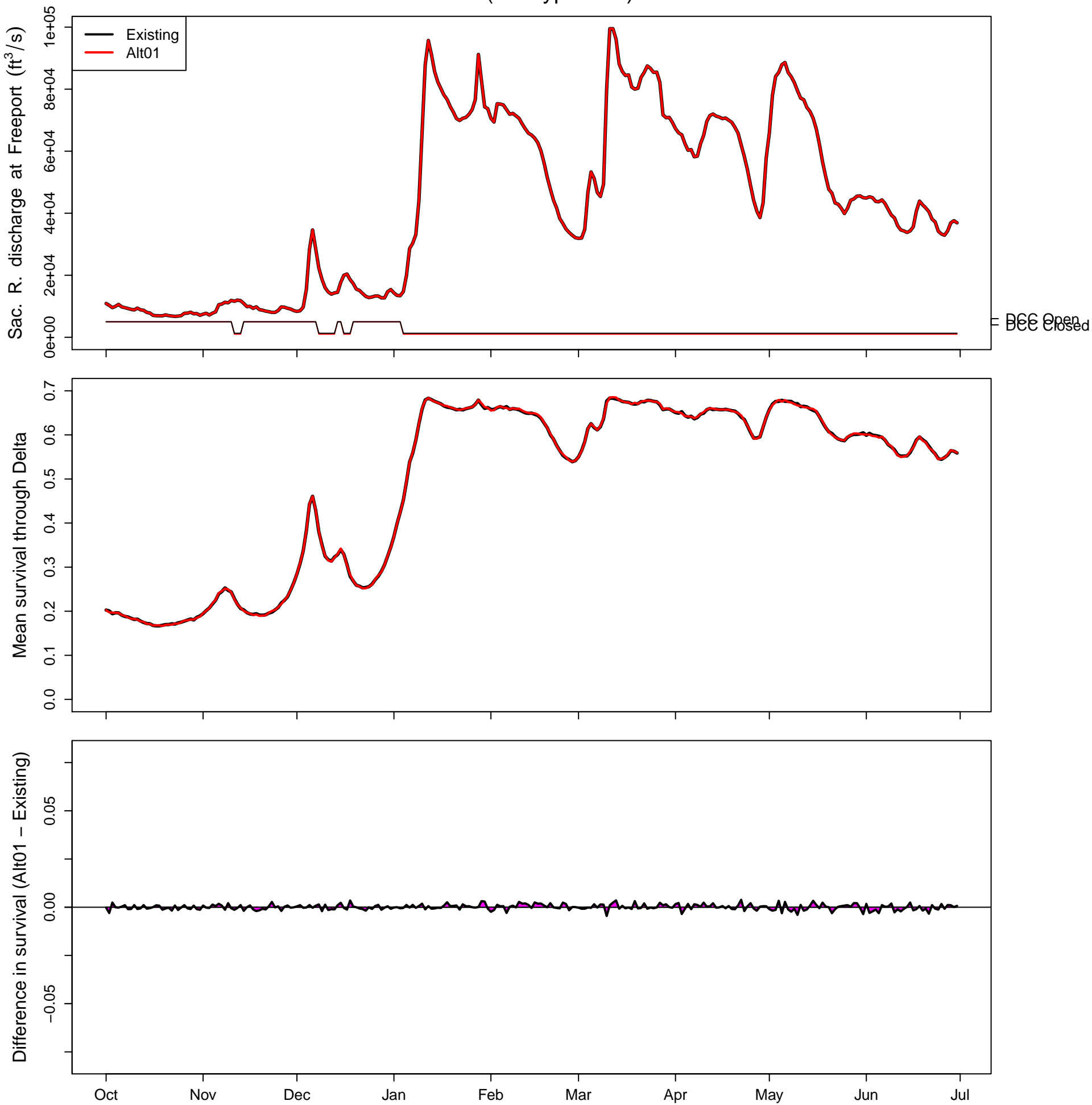
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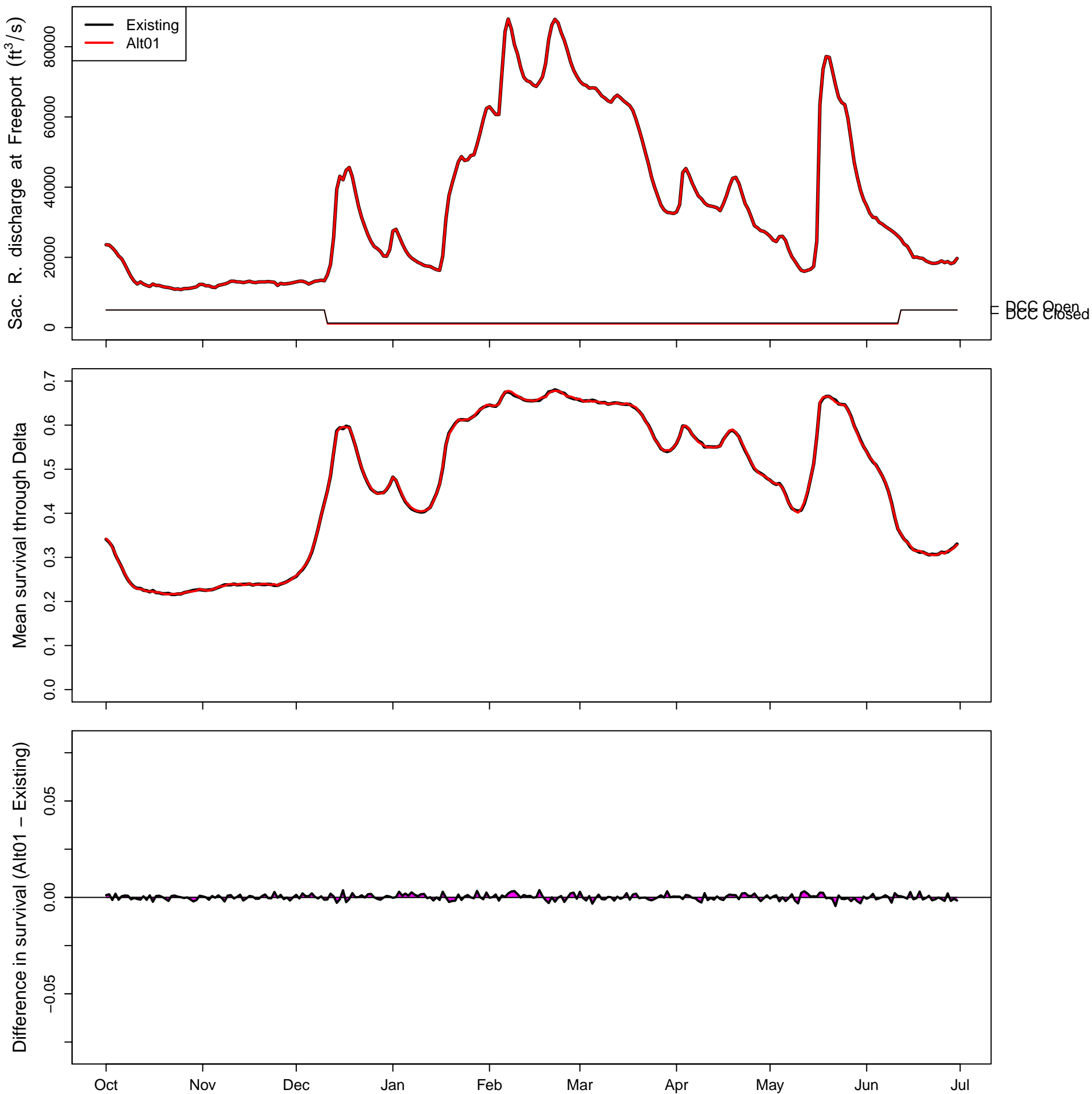
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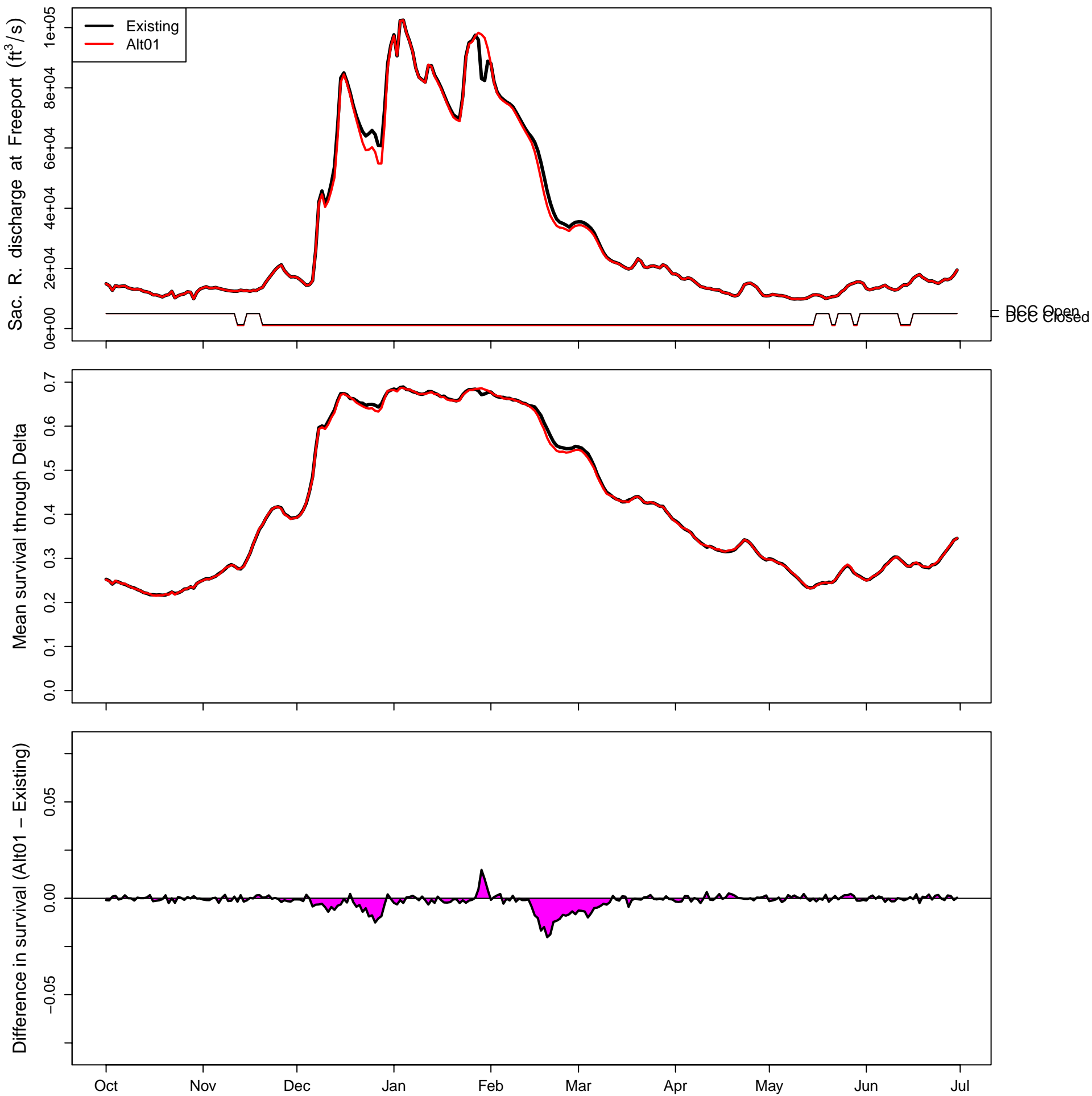
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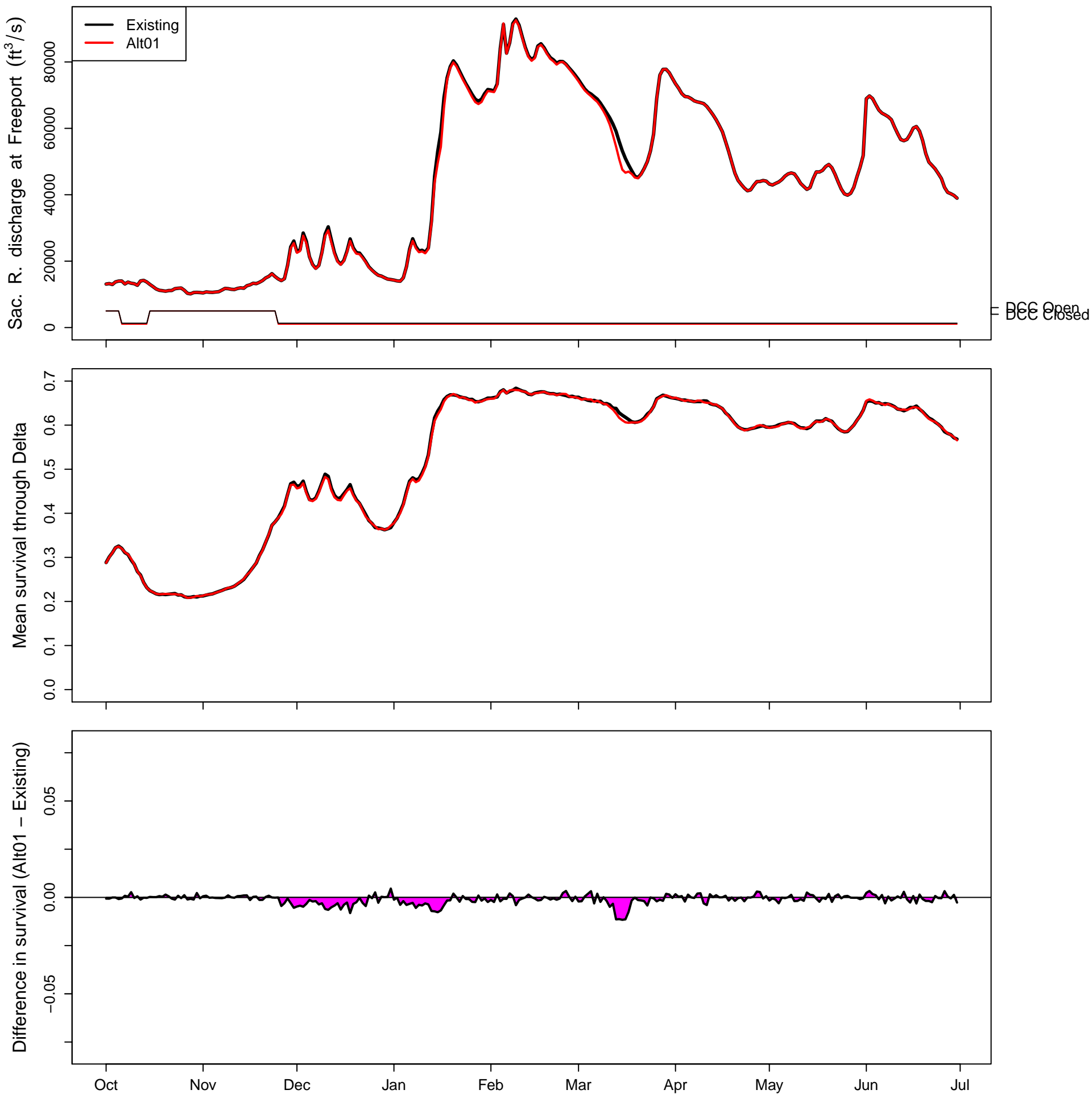
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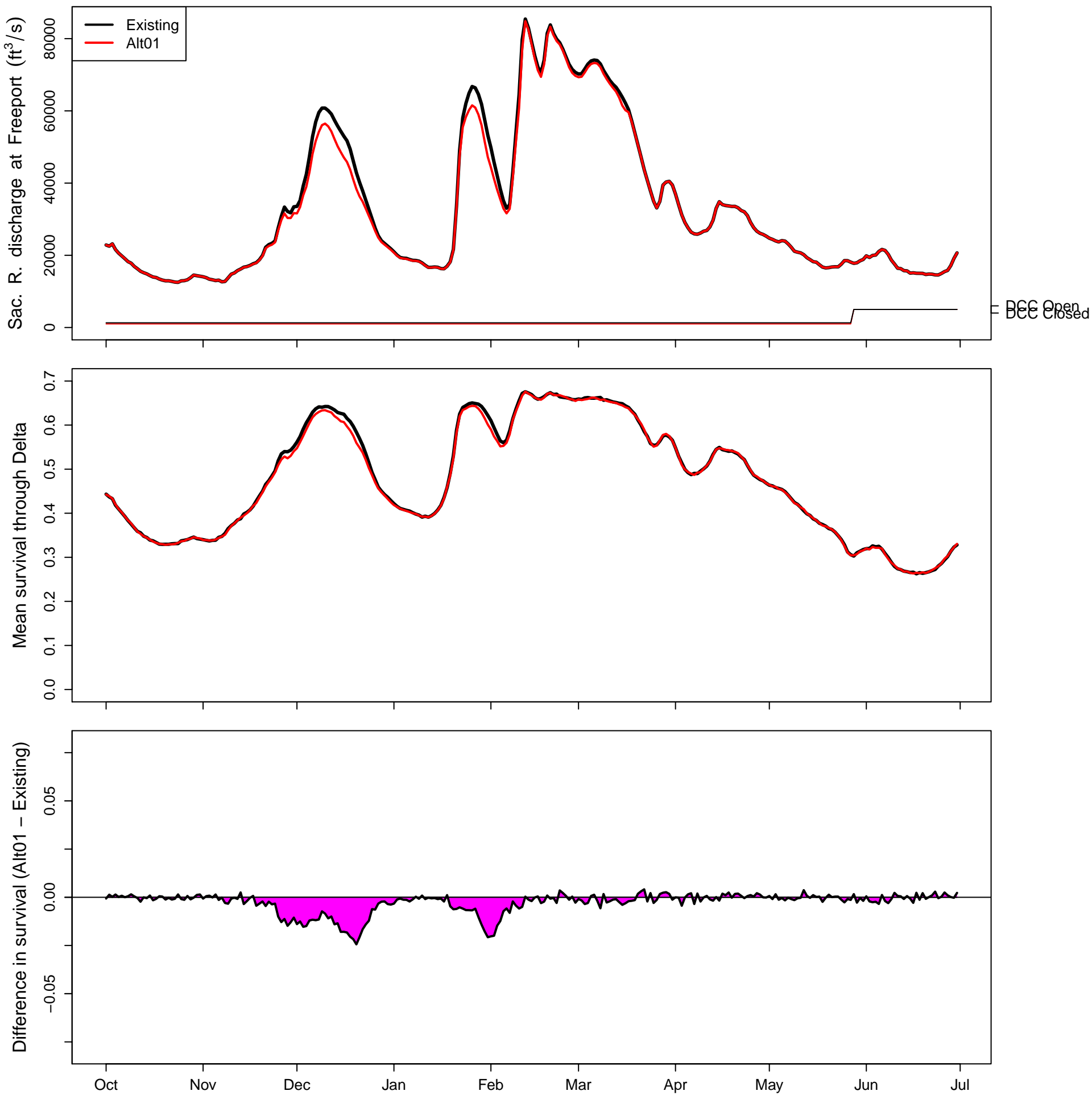
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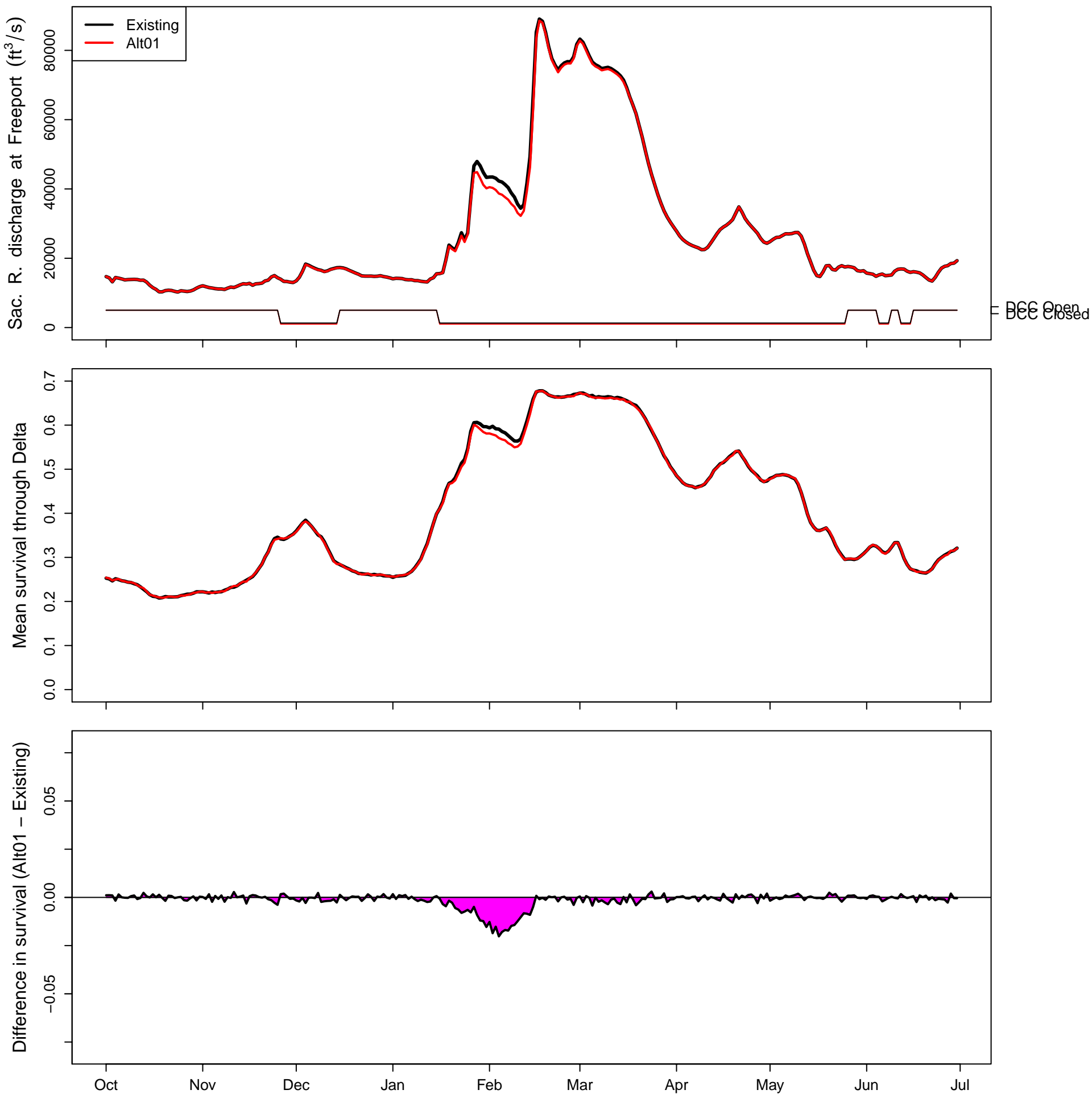
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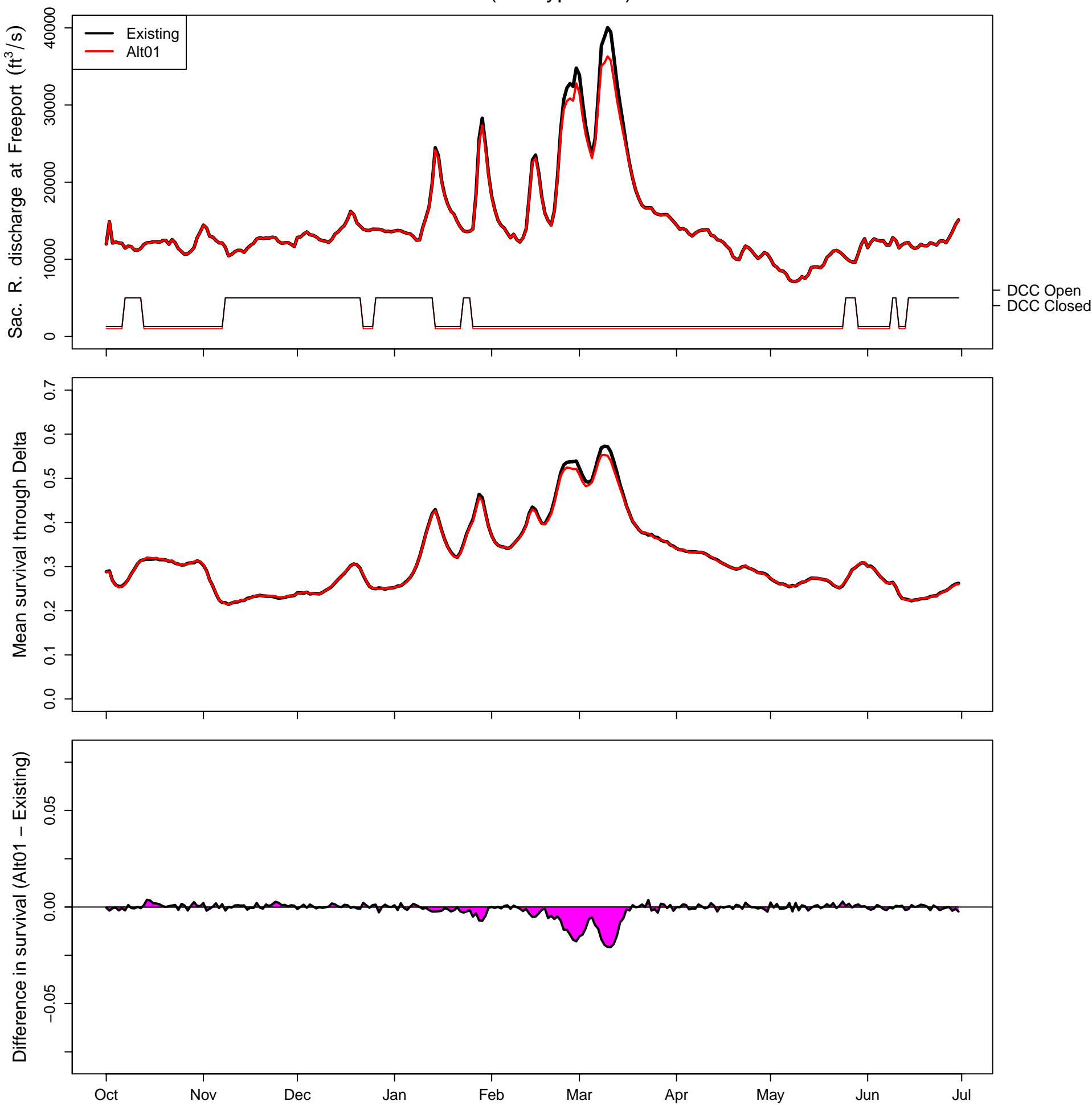
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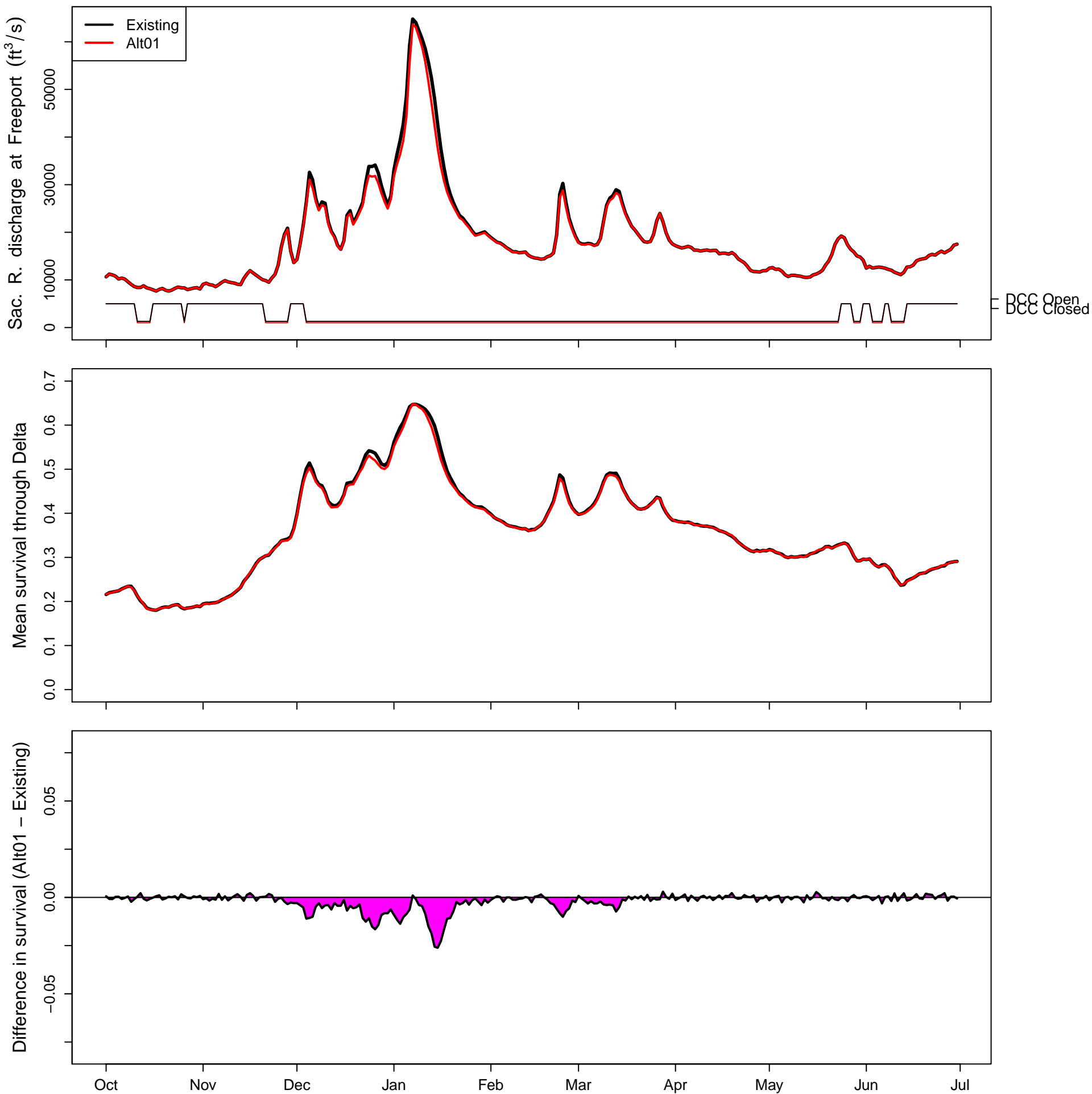
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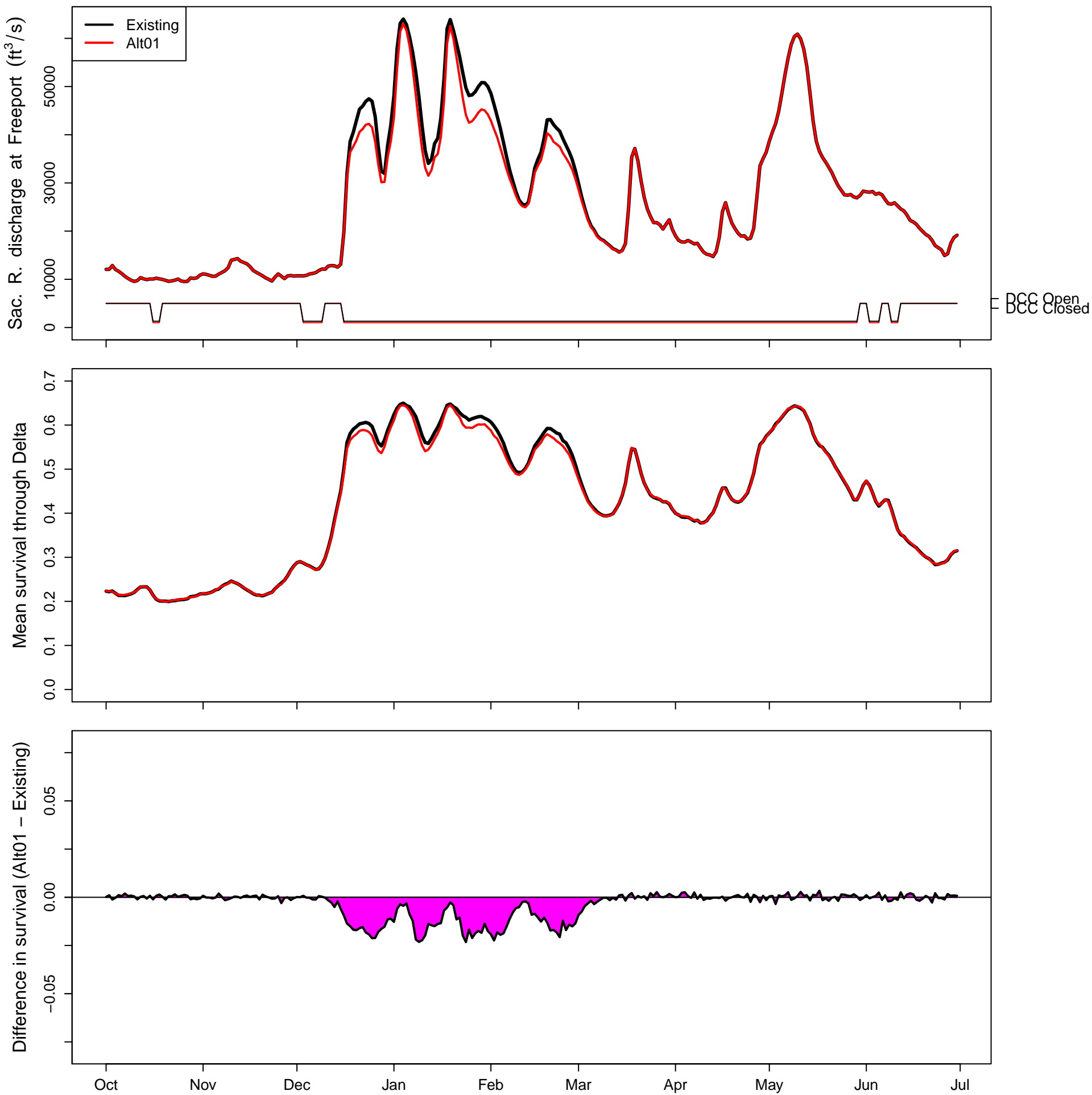
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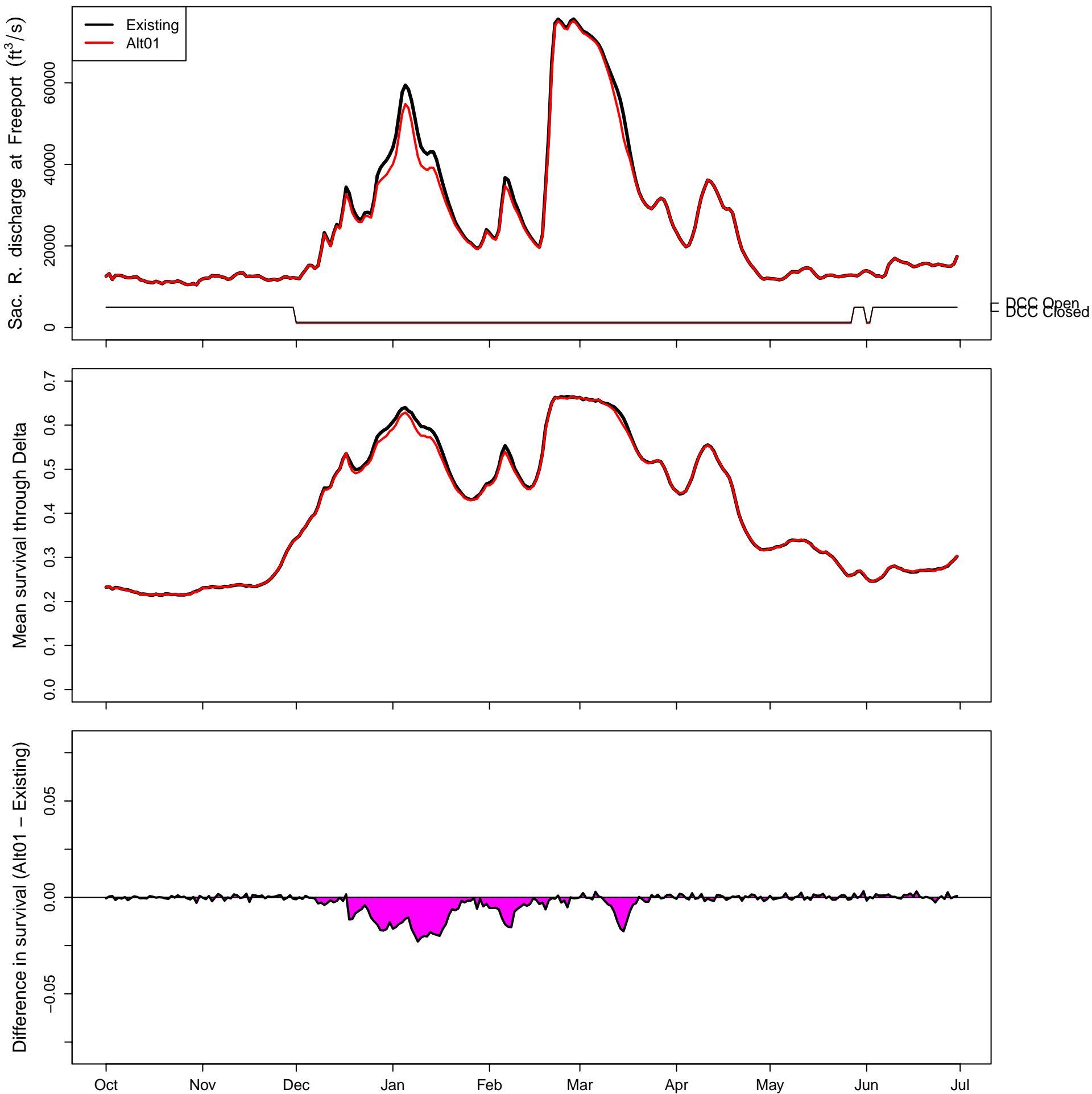
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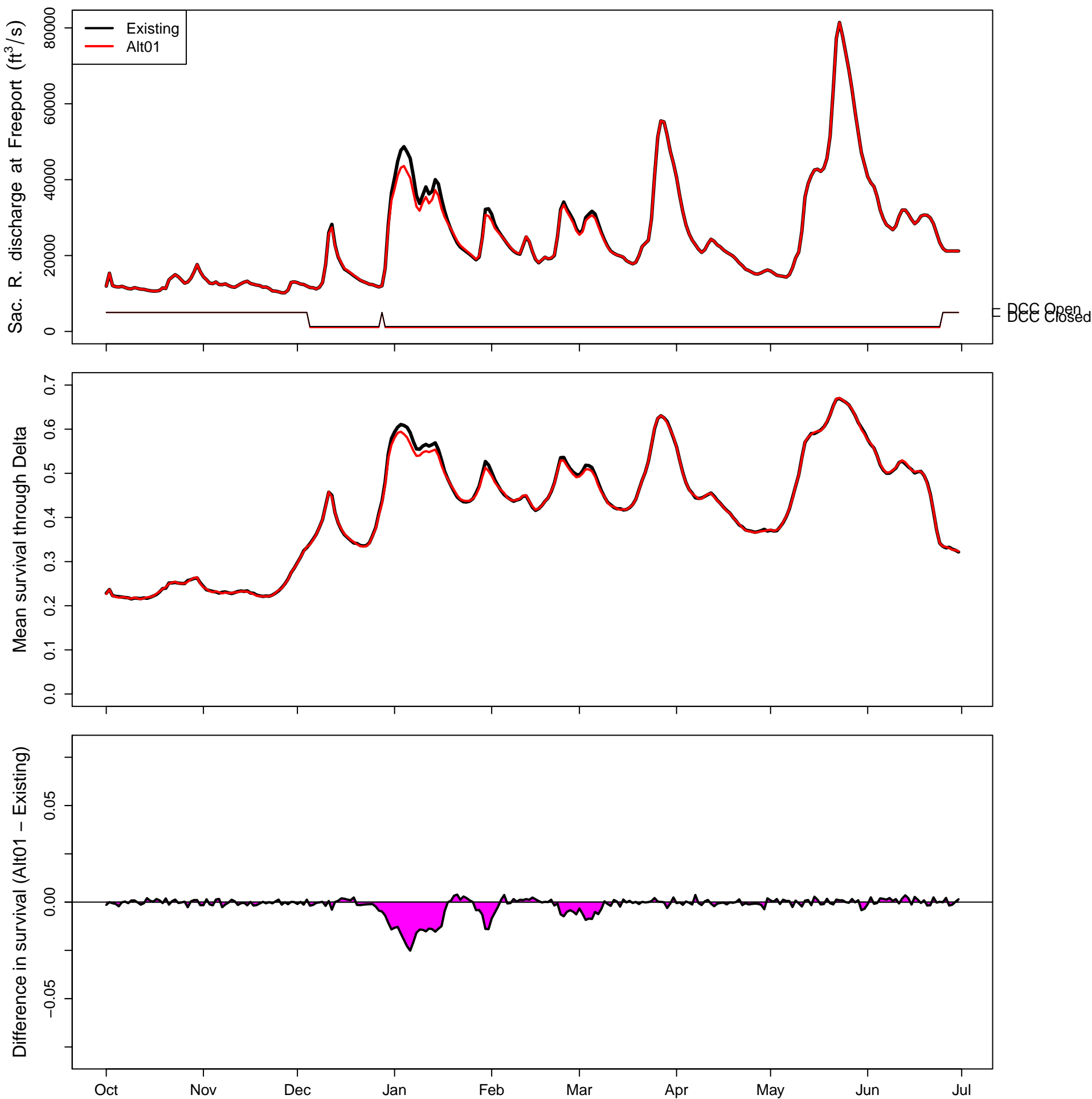
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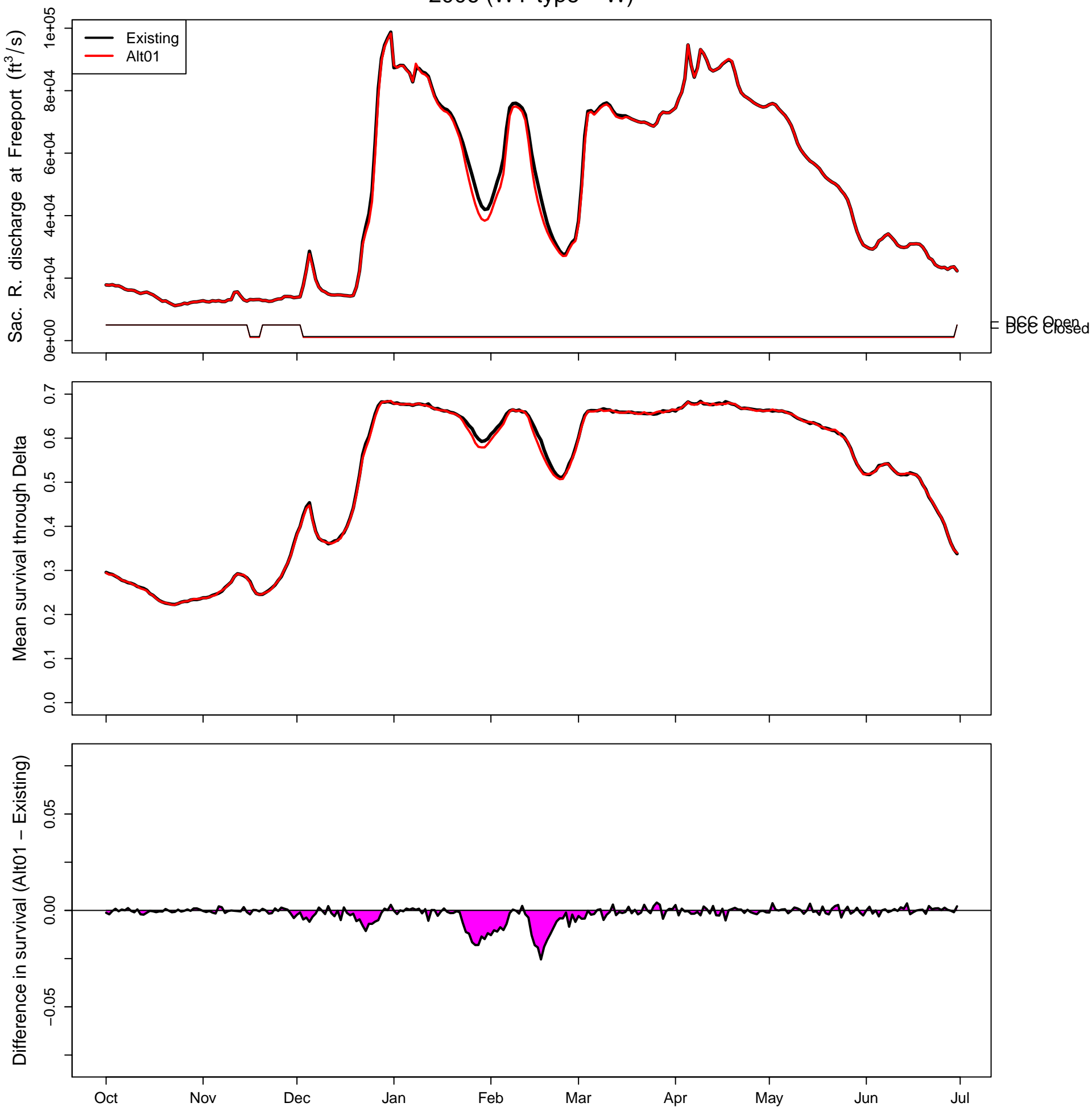
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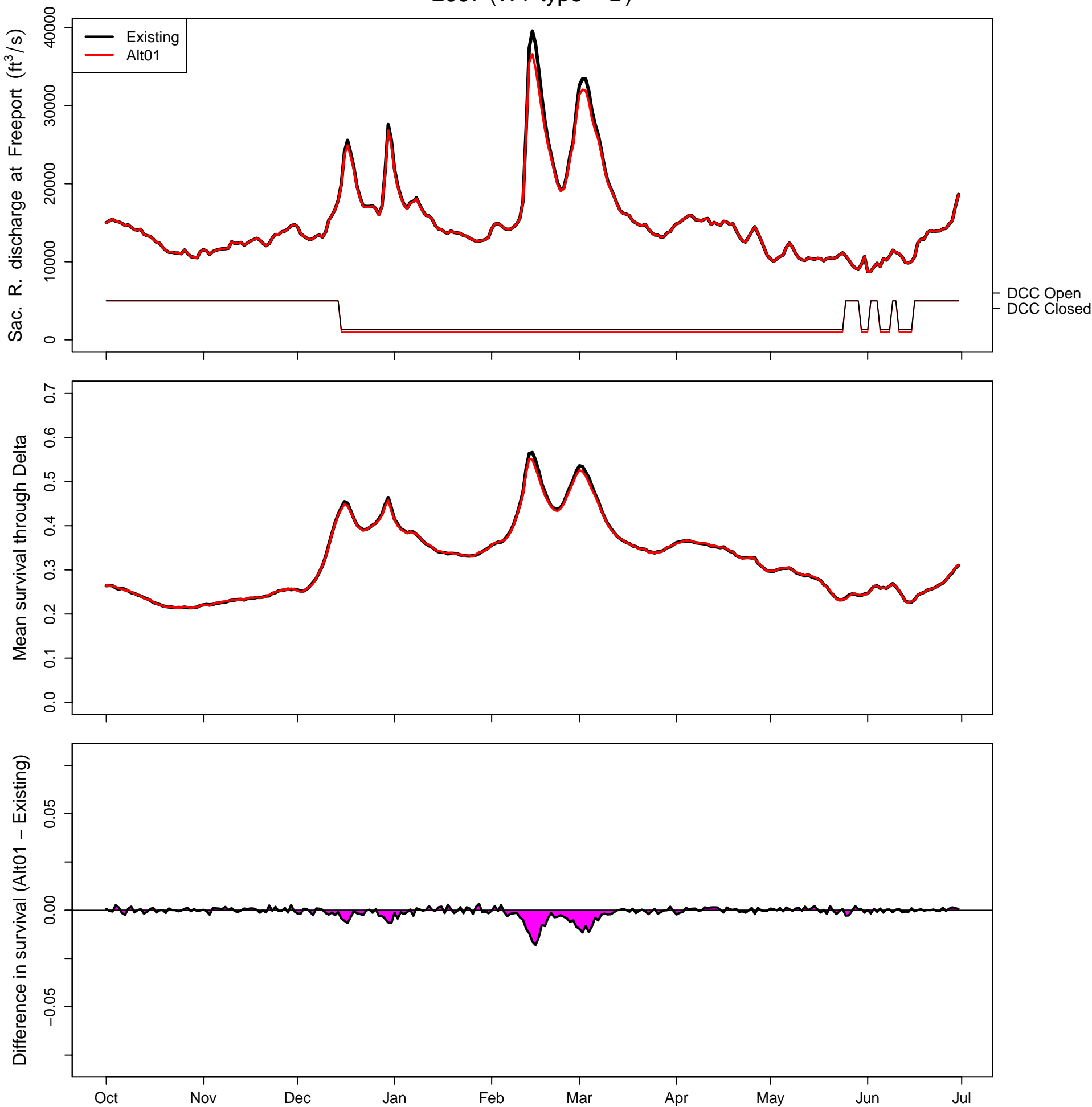
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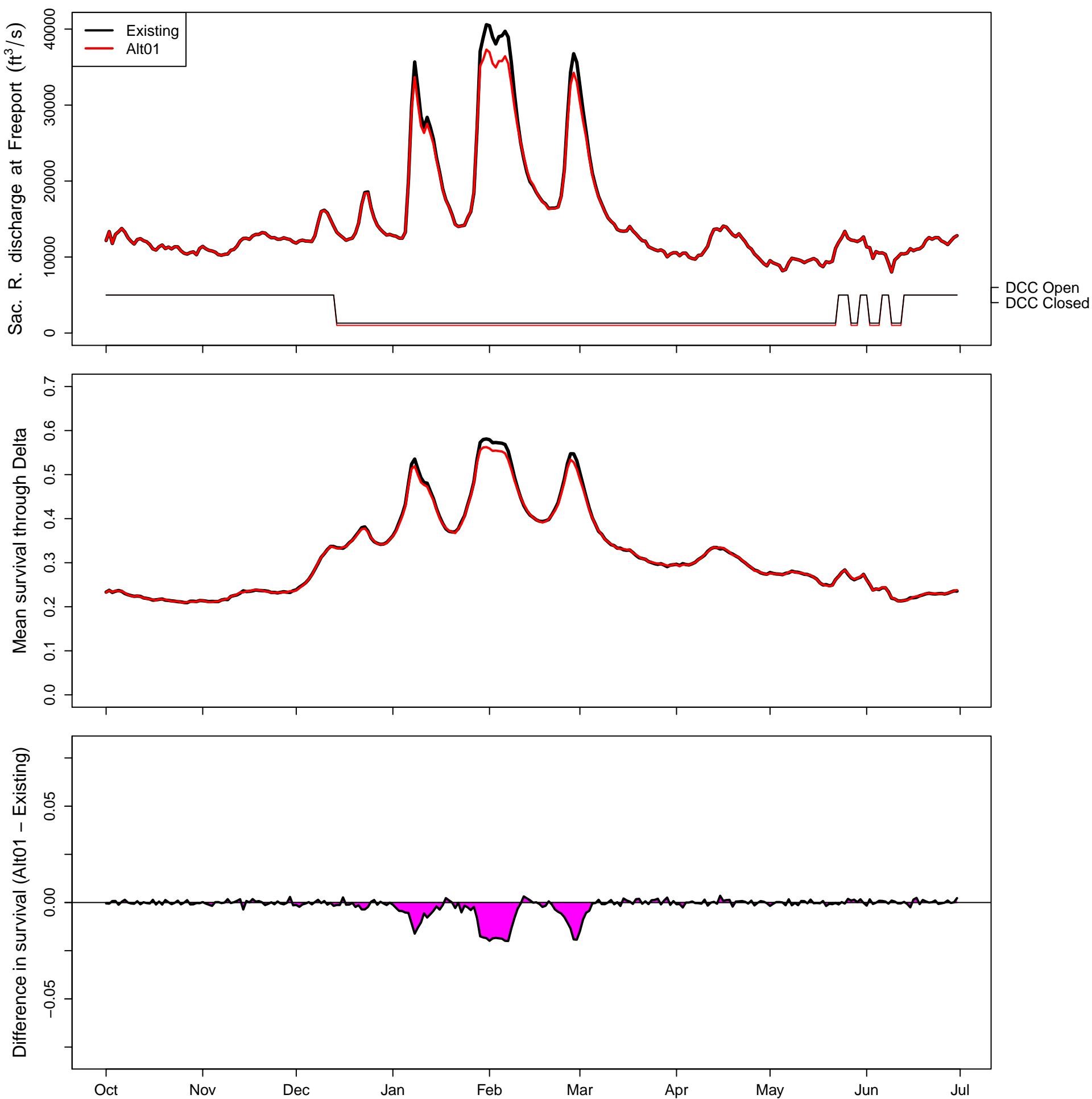
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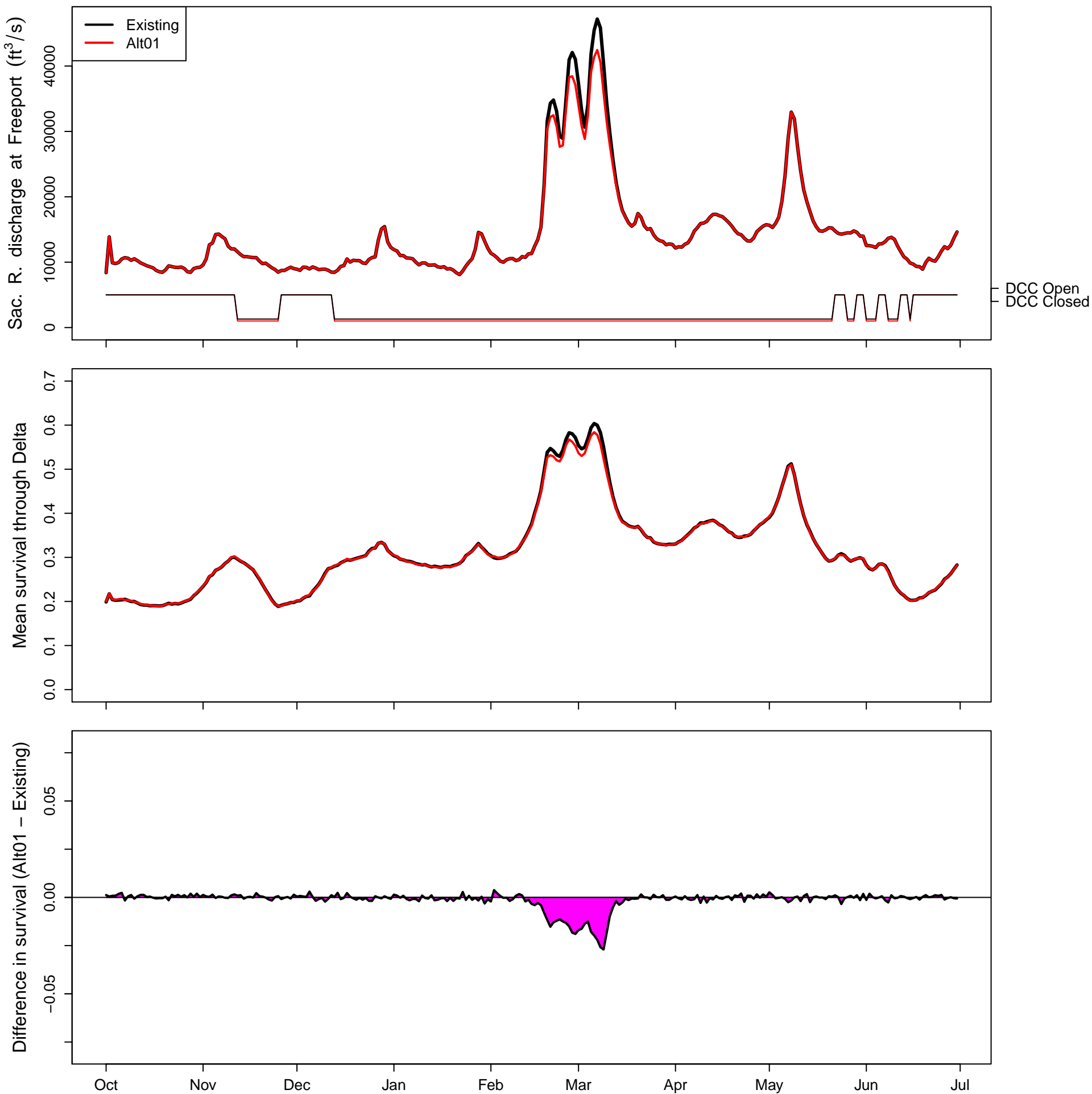
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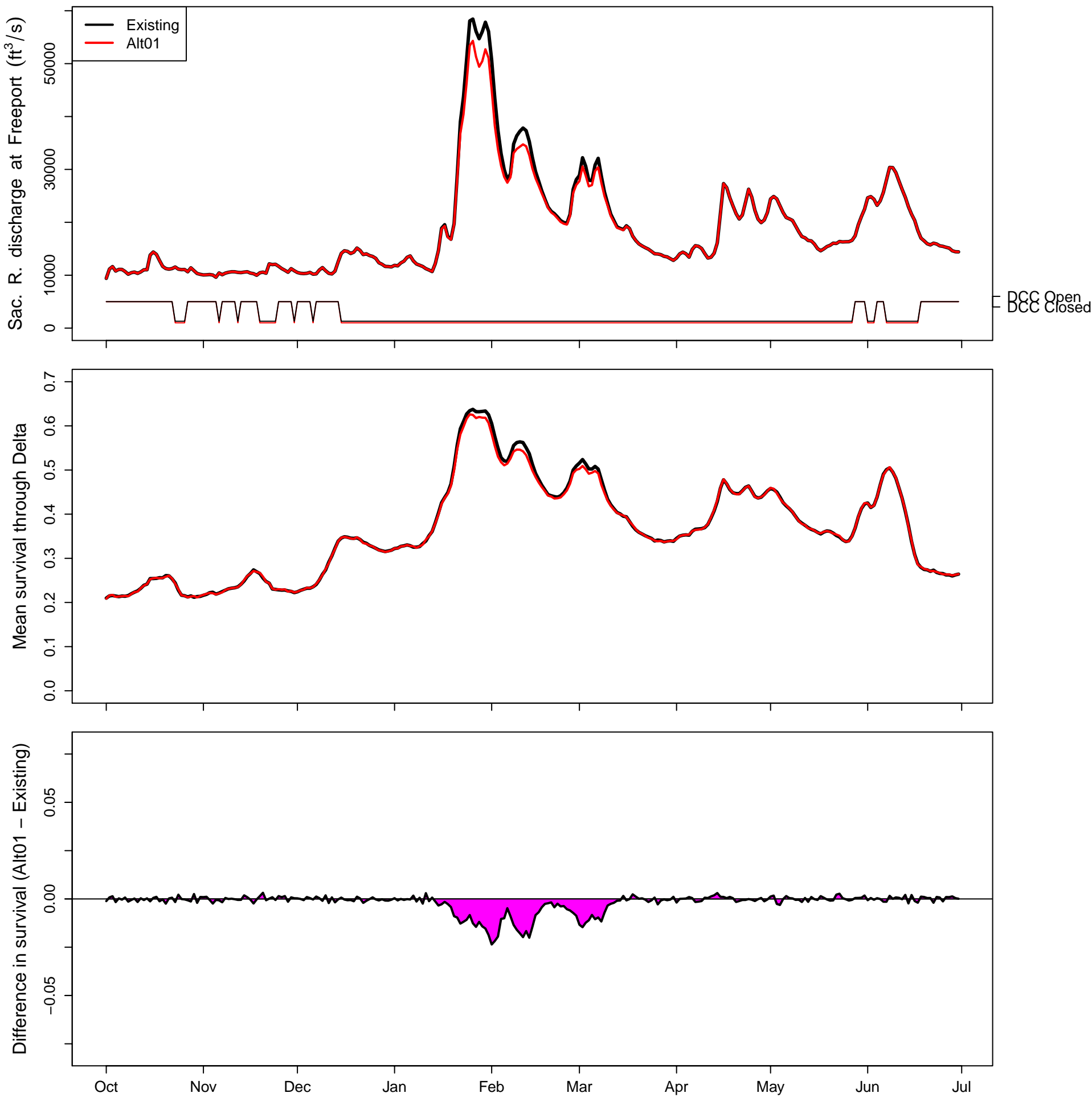
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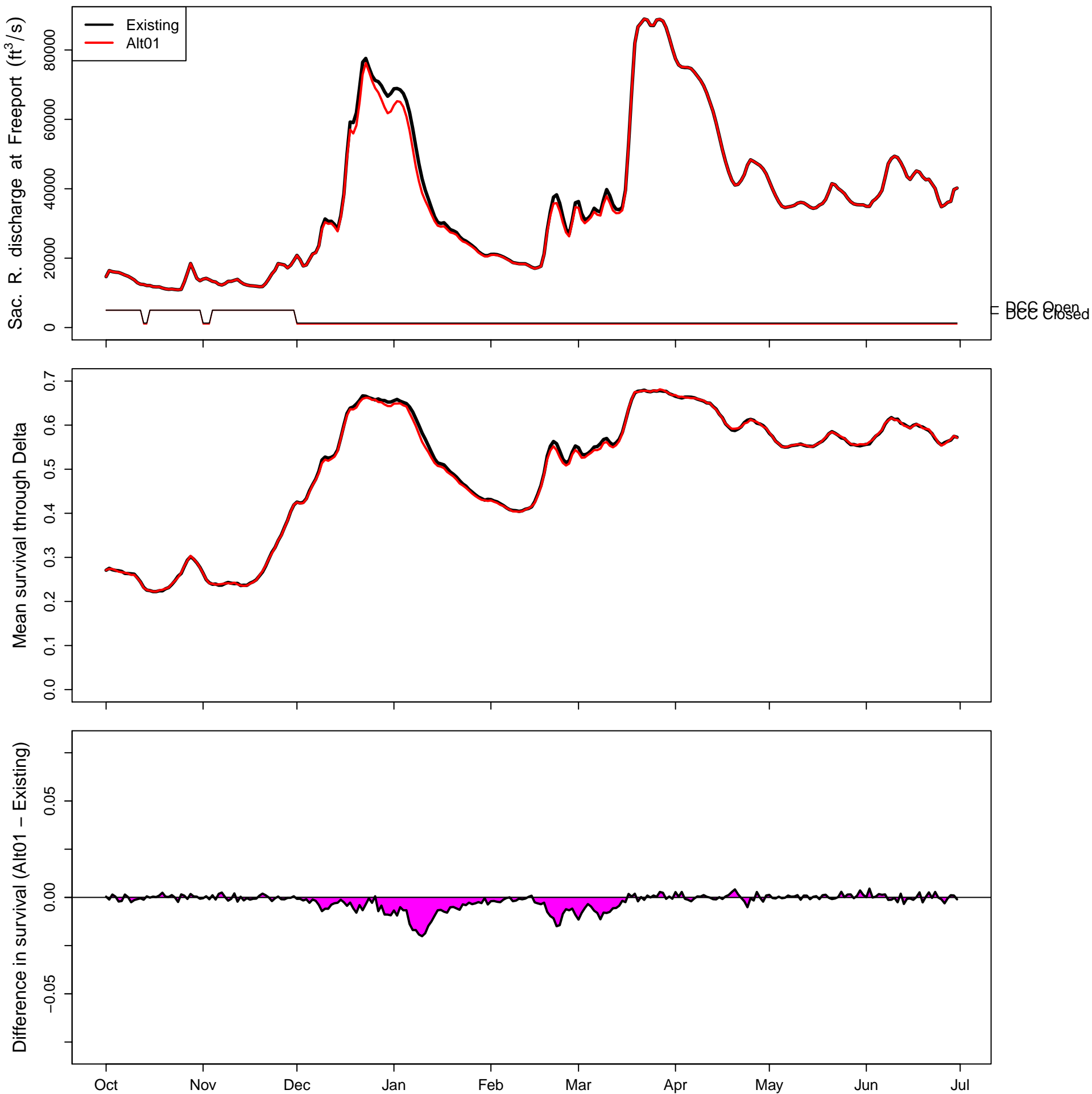
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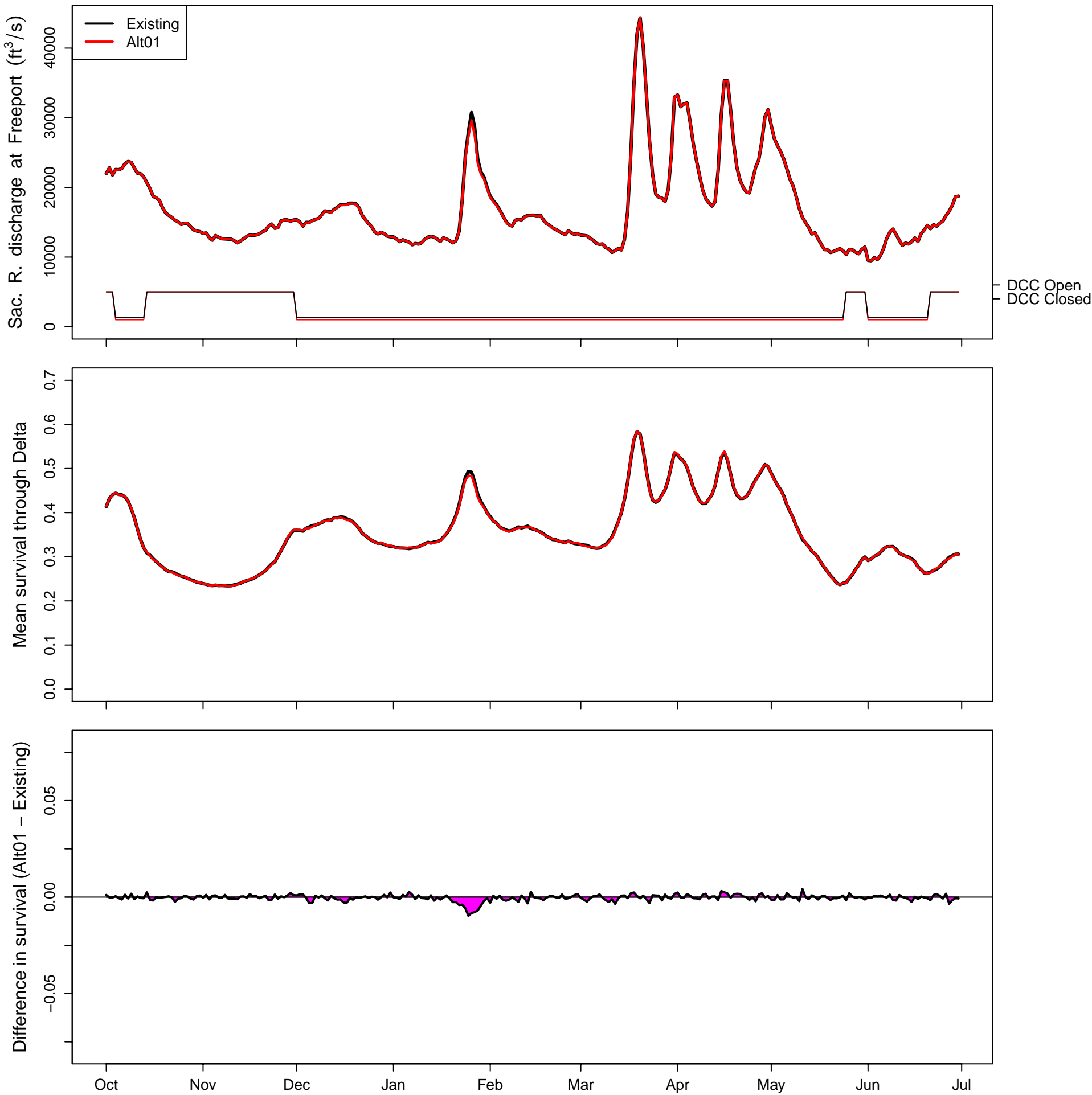
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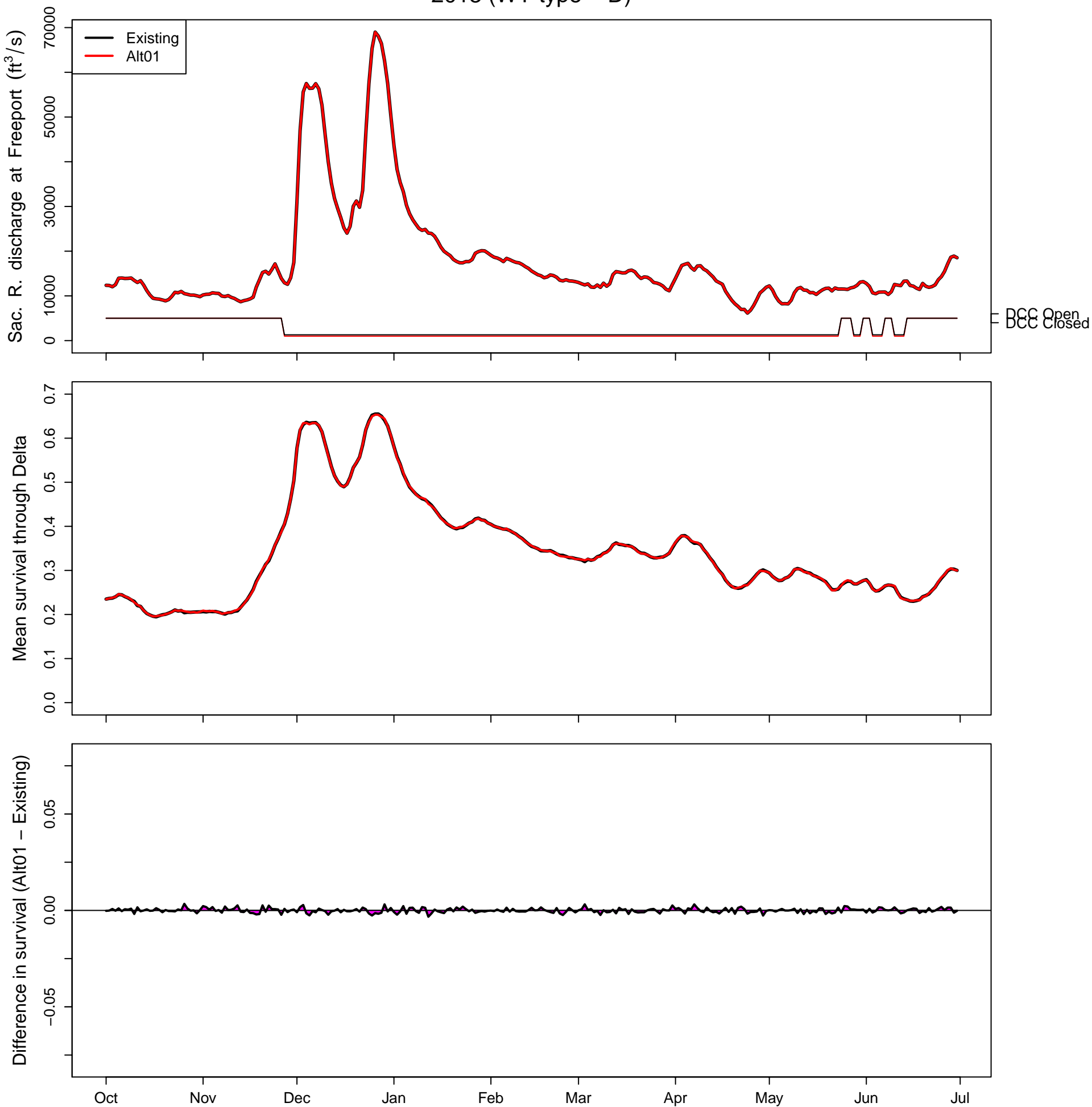
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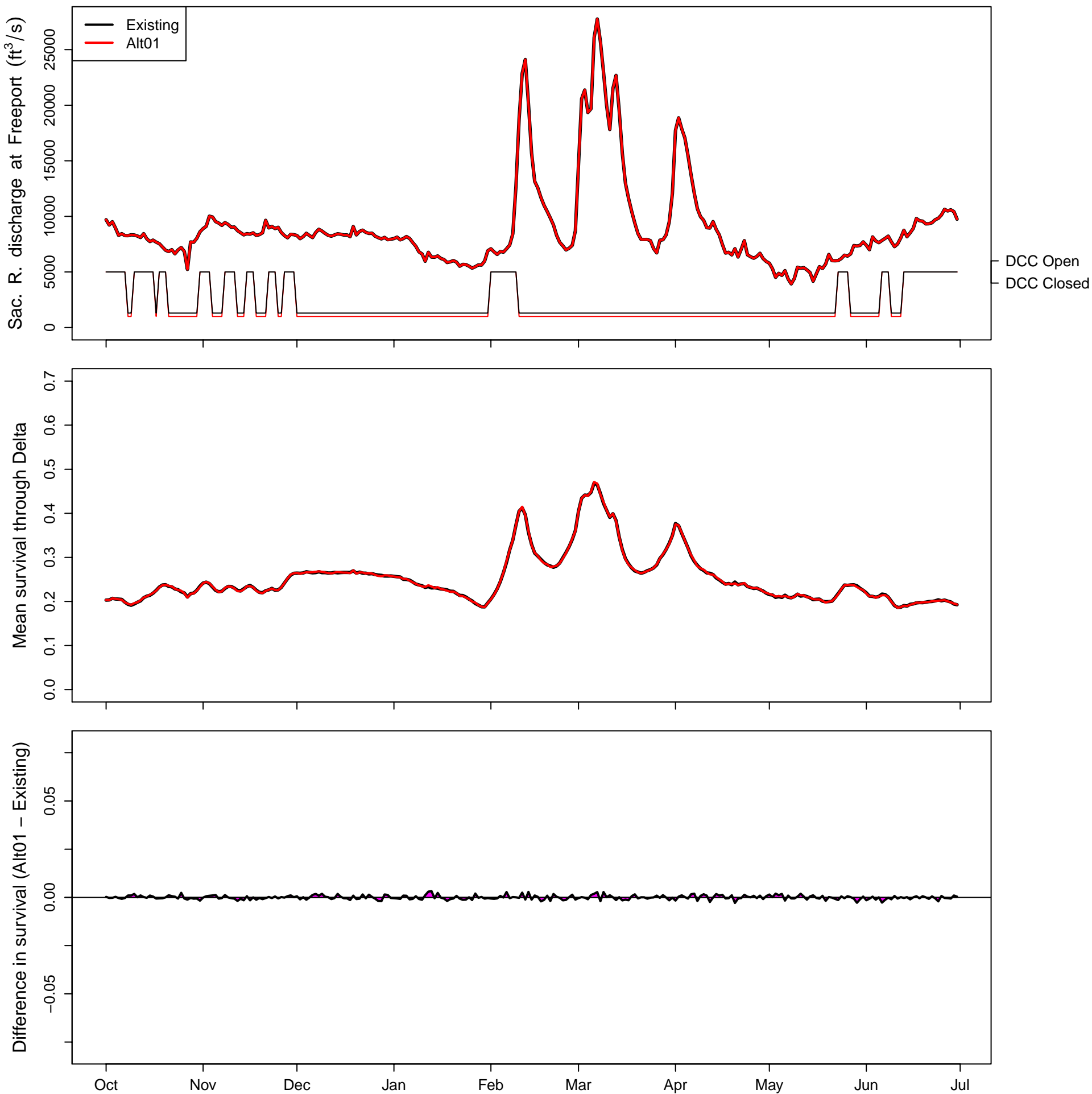
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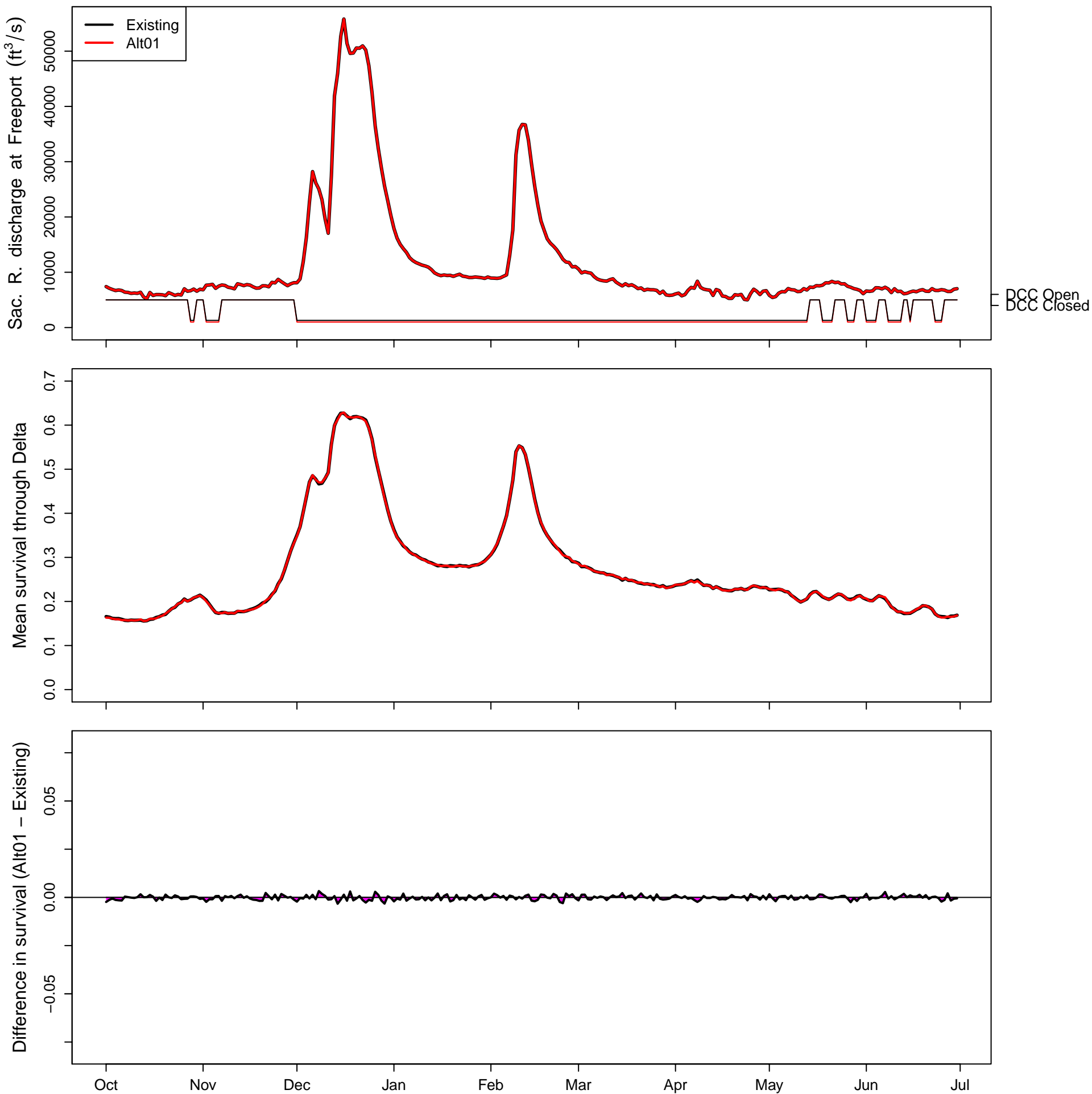
2013 (WY type = D)



2014 (WY type = C)



2015 (WY type = C)



2016 (WY type = BN)

