

From: Rob Thomson
To: [Oliver, Mark/RDD](#); [Black, Lyna/RDD](#)
Cc: [Anne Hoagland](#)
Subject: FW: Sites Project Letter [EXTERNAL]
Date: Friday, January 12, 2018 1:22:53 PM
Attachments: [image001.jpg](#)
[image002.png](#)
[Sites Project Letter.pdf](#)

Comments

From: Cashdollar, Shaundra@Wildlife [mailto:Shaundra.Cashdollar@wildlife.ca.gov]
Sent: Friday, January 12, 2018 1:06 PM
To: Rob Thomson <rthomson@sitesproject.org>; Jim Watson <jwatson@sitesproject.org>; Sites Project <info@sitesproject.org>
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Subject: Sites Project Letter

All,

Please open the above attachment to view the subject mentioned letter.

Sincerely,

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EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director



January 12, 2018

Rob Thomson
Sites Project Authority
P.O. Box 517
Maxwell, CA 95955

Subject: SITES PROJECT
DRAFT JOINT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL
IMPACT STATEMENT (DRAFT EIR/EIS) SCH# 2001112009

Dear Mr. Thomson:

The California Department of Fish and Wildlife (CDFW) received and reviewed the Notice of Availability of a Draft EIR/EIS (DEIR/DEIS) from The Sites Project Authority (Authority) for the Sites Project (Project) pursuant the California Environmental Quality Act (CEQA) statute and 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 for which CDFW, by law, may need to exercise its own regulatory authority under the Fish and Game Code. The Department appreciates that with most large projects there may be a continuing effort to analyze impacts and revise the various project alternatives. The Department remains available for coordination for those purposes.

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. (Fish & G. Code, § 1802.) Similarly, for purposes of CEQA, CDFW is charged 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 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

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

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. CDFW also administers the Native Plant Protection Act, Natural Community Conservation Planning Act, and other provisions of the Fish and Game Code that afford protection to California's fish and wildlife resources.

PROJECT DESCRIPTION SUMMARY

The proposed Project facilities would primarily be located in Glenn and Colusa counties, approximately 10 miles west of the town of Maxwell. The Project would include a new off stream surface storage reservoir (Sites Reservoir) with two main dams, up to nine saddle dams, and up to five recreation areas. The Sites Reservoir would be filled through the diversion of Sacramento River flows via two existing diversions/canals (all alternatives) and a proposed new inlet diversion/outlet structure and pipeline (majority of alternatives). The proposed pipeline would allow for Sacramento River diversions for most alternatives, and discharge of water under all alternatives. Water conveyance between the reservoir and the canals and pipeline would be facilitated by two new regulating reservoirs. Pumping/ electrical generating facilities would also be included as part of most alternatives. A new overhead power line would connect the pumping/generating plants and their associated electrical switchyards to an existing overhead power line in the Project area. New roads and a bridge across the proposed Sites Reservoir would be constructed to provide access to the proposed Project facilities and over the proposed reservoir, and some existing roads would be relocated or improved. The Project would require modifications to one of the existing canals and pumping plants.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist the Authority, as lead agency, in adequately identifying and, where appropriate, mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources.

In general, CDFW has identified several areas where additional, clarified, or modified analysis is necessary to allow for a complete analysis and disclosure of the potential impacts of the Project, and where the DEIR/DEIS requires improved, enforceable mitigation measures. The document's disclosure and analysis of impacts to aquatic species is of particular concern to the Department, including an insufficient analysis of the impacts of increased diversions that would occur during Chinook salmon (*Oncorhynchus tshawytscha*) migration periods, smelt analyses that do not appear to reflect proposed Project operations and potential reductions in Delta outflow, and a lack of analysis of potential entrainment and impingement of green sturgeon (*Acipenser medirostris*) and white sturgeon (*Acipenser transmontanus*) at Project intake facilities. CDFW also has concerns about the Project's potential impacts to floodplain habitat downstream of individual diversion facilities and downstream in the Delta. CDFW does not consider proposed bypass flows identified in the DEIR/DEIS to sufficiently minimize or offset these impacts.

Project Description

The project description within an EIR must supply sufficient detail to allow for the evaluation and review of the potential environmental impacts and must address the "whole of the action" with potential to result in direct physical changes to the environment or reasonably foreseeable indirect physical changes in the environment. (CEQA Guidelines, §§ 15124 & 15378.) The following comments highlight areas where further detail is necessary to allow for such evaluation.

The proposed inlet/outlet structure for Sites Reservoir would consist of a low-level inlet/outlet structure for emergency drawdown releases, a multi-level inlet/outlet structure tower, two fixed wheel gates to isolate the tunnel, a tower access bridge, and various valves and operators to regulate flows into and out of the reservoir. The DEIR/DEIS assumes that the reservoir outlet structures would allow withdrawal of water from the reservoir over a range of depths to manage release temperatures to match Sacramento River temperatures to the extent possible. However, more information is necessary regarding how the proposed Project operations will impact reservoir water surface elevations and volumetric estimates of cold water pool storage. Without this information, it is not possible to understand how those storage levels interact with the water release locations of the proposed outlet structure tower. CDFW also recommends the inclusion of data that summarize how much water can be released at each port and/or level along the structure tower. Collectively, this information is vital to understanding how or if reservoir release temperatures could be managed to match Sacramento River water temperatures and if the proposed outlet structure is appropriately designed to accomplish this task. To inform the analysis of impacts to aquatic biological resources, the Project Description should include a thorough qualitative discussion of when and from what sources the Project generally acquires (diverts) water throughout the year. This should include a discussion of Sacramento River diversions, capture of flows in the Funks and Stone Corral watersheds, and agricultural return flows otherwise flowing to the Colusa Basin drain.

Hydropower Generation and Transmission

The DEIR/DEIS lists "flexible hydropower generation to support the integration of renewable energy sources" as a secondary objective for the Project and includes hydropower generation in three of the five alternatives for the Project. Specifically, Alternatives A, B, and C all include new hydropower facilities with related overhead power line facilities. Alternative D *could* include new hydropower facilities with related overhead power line facilities; however, these facilities may not be included in the final implementation of Alternative D. Alternative C₁ is identical to Alternative C with respect to facilities and operational assumptions, but assumes no hydropower generation or delayed construction of hydropower facilities to account for potential future power market conditions and anticipated permitting processes. CDFW believes it is reasonably likely that the Authority would install hydropower facilities with related overhead power lines at the Project. As the appropriate State fish and wildlife agency for resource consultation and Federal Power Act Section 10(j) (16 U.S.C. section 803 (j)) purposes, CDFW strongly recommends the DEIR/DEIS describe the potential hydropower facilities in detail to ensure adequate analysis of the impacts of the Projects related to hydropower generation and associated facilities. Additionally, if the Authority intends to pursue hydropower facilities,

CDFW recommends the Authority initiate the process to obtain an original license from the Federal Energy Regulatory Commission (FERC) to construct, operate, and maintain a hydroelectric project.

Chapter 3 of the DEIR/DEIS describes the Sites Pumping/Generating Plant that would pump water from the proposed Holthouse Reservoir into the proposed Sites Reservoir and generate electricity during the release of water from Sites Reservoir to Holthouse Reservoir. CDFW is concerned about the potential entrainment of reservoir fish between the two reservoirs during the pumping and release of water. Although the proposed pumps are “fish-friendly” Francis turbines, these pumps do not guarantee survival of all fish that travel through the pumps. Additionally, fish that do survive the turbines may become injured, disoriented, or stressed when they emerge from the turbines and exhibit irregular behavior and be more susceptible to predation or further injury. Chapter 12 of the DEIR/DEIS states that an impact analysis for reservoir fisheries was not completed since no reservoir fishery exists under the Existing Conditions/No Project/No Action Condition. However, the Project proposes to develop and fill the reservoir and develop recreational fishing opportunities, and its diversions from the Sacramento River may result in fish being located in the reservoir. Operation of pumps for hydropower is a part of Project operations and thus the environmental document for the Project must disclose and analyze impacts from those activities. CDFW recommends the Authority include an impact analysis of pump operations in relation to potential entrainment of reservoir fish and consider screening as a mitigation measure to avoid the entrainment and transfer of fish between the two reservoirs during hydropower generation.

Existing Conditions and Project Alternatives

The environmental setting – a description of the physical environmental conditions existing in the vicinity of the Project at the time the notice of preparation is published – will normally constitute the baseline by which a lead agency considers the significance of an environmental impact. (CEQA Guidelines, § 15125, subd. (a).) The existing conditions baseline is the norm from which a deviation should be justified, and caselaw recognizes that complicated modeling introduces inherent uncertainty and makes an analysis less accessible to decision makers and the public. (*Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal. 4th 439, 454-456.) CDFW recognizes that a lead agency must decide how to most realistically measure existing conditions. However, a hypothetical “maximum permitted operational levels” baseline may be misleading as a basis for comparison, where it is not a realistic assumption. (*Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010), 48 Cal. 4th 310, 322.)

CDFW is concerned that the analytical approach in the DEIR/DEIS, which relies heavily on 2030 projected conditions, does not present the most realistic measurement of existing conditions and could have misleading or confusing results. The same baseline is not used across all models and analyses, which compounds the potential problems.

The DEIR/DEIS assumes Existing Conditions and the No Project/No Action Alternatives to be the same and, refers to them collectively as the “Existing Conditions/No Project/No Action Condition” throughout the document and does not distinguish between them for the

impact analyses. Consequently, the impact analyses compare all Project alternatives to projected future water demands through 2030. These projections also assume Central Valley Project (CVP) and State Water Project (SWP) contractors would use their total contract amounts and that senior water rights users would fully use their water rights – an assumption that does not reflect current conditions.

CDFW is concerned that an environmental baseline that relies on future water demands may obscure the severity of the Project's water operations impacts when compared to actual existing conditions. In addition, the DEIR/DEIS discloses that the CALSIM II, Delta Simulation Model (DSM2), and American River diversion assumptions vary between the Existing Conditions Assumption and the No Action Alternative Assumption. These shifting assumptions prevent a comprehensive and stable understanding of potential Project impacts. CDFW recommends that the DEIR/DEIS provide separate and independent impact analyses of the Existing Conditions and the No Project/No Action Alternatives, and that the Existing Conditions should constitute existing water rights and contract amounts along with existing hydrologic conditions at the time of the release of the Notice of Preparation (NOP) in March 2017. For example, the Project's environmental baseline is more clearly defined in the 2009 National Marine Fisheries Service *Biological Opinion and Conference Opinion on the Long-term Operations of the Central Valley Project and the State Water Project*.

As a means of reducing significant environmental impacts of a project, CEQA requires that an EIR must contain feasible mitigation measures as well as feasible project alternatives that could avoid or substantially lessen the project's significant environmental effects. (Pub. Res. Code, § 21002, 21100(b)(4).) As described by the CEQA Guidelines, an EIR must describe "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." (Cal.Code Regs., tit. 14, § 15126.6(a).)

The DEIR/DEIS includes Project features and alternatives that maximize the Project's objectives; however, the DEIR/DEIS does not include potentially feasible alternatives that would avoid or substantially lessen the Project's significant environmental impacts. CDFW continues to recommend that the DEIR/DEIS should include a more robust range of operational alternatives, as discussed in its comments to the NOP, provided on March 21, 2017. Of the five alternatives in the DEIR/DEIS, many of them are similar with respect to water operations (e.g. diversions, bypass criteria, deliveries are the same across alternatives.) CDFW recommends that alternatives should be split into two or more alternatives that encompass the entire range of possible water operations scenarios, including an alternative that minimizes operational impacts through more restrictive bypass flows and diversion criteria.

In addition, to the extent there are distinctions among the five alternatives, the document uses a comparative approach that makes it difficult for the reader to understand in absolute terms the impacts of the Project. For example, the document frequently discusses the similarities between Alternatives C₁ and C, and Alternatives C and D, and often considers them to be the same for the impact analyses. CDFW recommends that a complete assessment of the Project's potential impacts be provided to better understand

the ability of Project alternatives to avoid or substantially lessen the Project's potential significant environmental impacts.

Impacts Analysis

Surface Water Resources

The DEIR/DEIS characterizes Project impacts to surface water resources broadly as increased, reduced, or similar when compared to the Existing Conditions/No Project/No Action Condition in Chapter 6. The Project proposes modifications to CVP/SWP operations throughout the Sacramento River watershed and Sacramento-San Joaquin Delta. Generalizations in the analyses make it difficult to understand how the Project will impact surface water resource management, such as cold water storage and the quantities of water that may be released out of reservoir outlets, and the consequent impacts to biological resources. The generalities result because water quantities and Project-generated changes are not disclosed for Existing Conditions, the Action Alternatives and the No Project/No Action Condition for any of the reservoirs, tributaries, or the Delta in the secondary or extended study areas. (See DEIR/DEIS, section 6.3.3.2.) These values are summarized only for CVP and SWP deliveries, Sites Reservoir storage, and inflows at the Delevan pipeline. (See DEIR/DEIS, sections 6.3.3.1 and 6.3.3.3). To enable meaningful review of the Project's impacts to reservoir and tributary management, CDFW recommends that the DEIR/DEIS disclose and analyze water quantity values and the corresponding Project-generated changes for all reservoirs and tributaries in the primary, secondary, and extended study areas under the Existing Conditions, all Action Alternatives, and the No Project/No Action Condition in Chapter 6. CDFW recommends a reporting structure similar to that of Table 6-8, with a caveat that the Existing Conditions and the No Project/No Action Condition should be separated and analyzed independently, as suggested previously. These data summaries will allow the reader to compare Project impacts to surface water resources between the Existing Conditions, all Action Alternatives, and the No Project/No Action Condition.

The DEIR/DEIS surface water resources analysis shows potentially significant impacts to aquatic biological resources because of flow reductions when fish species are present. Specifically, in Dry and Critical water years, flows in the Sacramento River would decrease as a result of the Project in Alternatives A, B, C, and D as compared to the Existing Conditions/No Project/No Action Condition. These decreases would occur: (1) from March through June and in October downstream of Keswick Reservoir; (2) from February through June downstream of the Tehama-Colusa Canal Authority (TCCA) Intake near Red Bluff; (3) from February through April (and March through May in other water years) downstream of Glenn-Colusa Irrigation District (GCID) Main Canal Intake near Hamilton City; and (4) from January through March downstream of Delevan Pipeline Intake/Discharge Facilities. Flows during the springtime (March – May) are critical for juvenile salmonid emigration in the Sacramento River, and especially so in dry and critical years when flows are already low. Decreased flows during this time period as proposed in the Project alternatives will lead to decreased juvenile salmonid survival. In addition, the Project proposes that in all water year types, reservoir releases would generally increase flows in July (and in some reaches June through November) when fish species of concern are least likely to be utilizing that habitat and flows are opposite of the natural hydrology. CDFW recommends

evaluation and analysis of an alternative under which operations provide for flows to increase in the Sacramento River in the winter and spring when juvenile salmonids are present.

The DEIR/DEIS states that modeling for the Project's alternatives restricted diversions to limit impacts on out-migrating juvenile fish as a "surrogate" for likely permit conditions. The DEIR/DEIS identifies this diversion limitation as Mitigation Measure Fish 1f in Chapter 12. However, the DEIR/DEIS never evaluates the Project's potential impacts, in comparison to the DEIR/DEIS significance thresholds, without this mitigation measure in place. Further, as discussed in more detail below, CDFW does not consider the short-term and limited pulse flow protections to adequately reduce impacts to migrating juvenile fish.

Surface Water Quality

Similar to surface water resources, it is difficult to understand how the Project will impact surface water quality because the values and corresponding Project-related changes are rarely reported under the Action Alternatives, the Existing Conditions, and the No Project/No Action Condition for reservoirs, tributaries, or the Delta in the primary, secondary and extended study areas in Chapter 7. CDFW recommends that the DEIR/DEIS disclose and analyze water quality values and the corresponding Project-generated changes for all reservoirs and tributaries in the primary, secondary, and extended study areas under the Existing Conditions, the Action Alternatives, and the No Project/No Action Condition in Chapter 7. The reporting structure for each constituent should include a summary by location, water year, and month for the Existing Conditions and corresponding changes to the No Project/No Action Condition and all Action Alternatives.

Water quality analyses depend on models that rely on CALSIM II, for which the output is on a monthly time step. However, daily and weekly changes to water quality can often have lethal or sub lethal effects on aquatic resources, which a monthly time step cannot capture. For full disclosure and analysis of potentially significant impacts, CDFW recommends that the analyses include a daily time series analysis.

Model limitations may also obscure the severity of the Project's temperature impacts to the Sacramento River. The Sites Reservoir discharge temperature model assumes Sites Reservoir is a vertically segmented reservoir with respect to temperature and derives Sites Reservoir inflow temperatures from three intakes; the TCCA Intake, the GCID Intake, and the Delevan Pipeline Intake. The model excludes potential changes in water temperatures within the Delevan Pipeline between Sites Reservoir and the Sacramento river because the DEIR/DEIS assumes significant warming will not occur within the buried Delevan Pipeline. The model also fails to take agricultural runoff into consideration, which may increase the solar radiation potential of the discharged water (Turek 1990). This has the potential to impact water quality in the reservoir and the associated discharge into the Sacramento River (i.e. increased turbidity and water temperatures).

Because of the considerable distance from the intakes to Sites Reservoir, CDFW recommends that the model incorporates water residence times and seasonal ambient warming from the intakes to Sites Reservoir to calculate the Sites Reservoir inflow

temperatures. CDFW also recommends water temperatures between the Sites Reservoir outlet and the Sacramento river be included in the model and that the model account for possible thermal effects from power generation at three facilities, pump-back operations, and varying residence times within the Holthouse Reservoir Complex, the Terminal Regulating Reservoir, and over the 13.5 mile pipeline. The refined model should be used for an impact analysis that evaluates all Action Alternatives, not just Alternatives C and D, regardless of their perceived similarities or differences.

The underlying assumption that the Sites Reservoir will become stratified because of warming within the upper layer of the reservoir in the summer months, similar to other large reservoirs in the California Central Valley, warrants additional analysis. Most large reservoirs in the Central Valley receive runoff from snowpack, which is largely absent in the Funks and Stone Corral watersheds. In addition, the proposed Sites Reservoir will be located in a shallow canyon, which will create a wide reservoir with a large surface area making it more vulnerable to mixing from high winds. CDFW recommends further analysis on the stratification potential for Sites Reservoir. Seasonal temperature profiles from nearby reservoirs that lack significant snowpack may be useful for this analysis. In addition, the analysis should consider the effects of highly regulated pumping-generating plants on the development of a thermocline, as discussed under the Project Description subheading, above.

Aquatic Biological Resources

Flow

CDFW considers bypass flow and other fish protection criteria identified in the Project alternatives to be insufficient to reduce potentially significant impacts to less-than-significant levels. At the diversions from the Sacramento river, the DEIR/DEIS proposes bypass flow criteria of 3,250 cfs (Red Bluff), 4,000 cfs (Hamilton City), and 5,000 cfs (Wilkins Slough). Population trends of native anadromous and pelagic fish are steadily declining under existing regulatory conditions and the additional extraction of water at the proposed bypass flow rates would exacerbate the problem. Reduced flow affects habitat use, as indicated by salmon models used in the DEIR/DEIS, but the timing and quantity of flow also influences migration events, predator evasion, and ultimately survival (del Rosario et al. 2013; Michel et al. 2013; Perry et al. 2015; Perry et al. 2016; Johnson et al. 2017). When velocities along migratory corridors are reduced, juvenile outmigration takes longer and smolts face increased predation risk (Anderson et al. 2005; Muthukumarana et al. 2008; Cavallo et al. 2013). The effects of flow on survival from travel time and predation risk are not incorporated into the salmon models used for the DEIR/DEIS and the DEIR/DEIS analysis should disclose and address these effects.

Based on a preliminary review of existing juvenile Chinook survival studies, the correlation between increased juvenile survival and flows at Bend Bridge begins to decline at around 13,000 cfs (Michel et al. 2015, Michel 2016). As a mitigation measure for the Project's potentially significant impacts to fish migration, the DEIR/DEIS identifies short-duration pulse flow protections, limited to only one per month regardless of natural conditions. In light of the best available science regarding juvenile survival and flows, the proposed bypass flows for a short duration pulse flow, representing the sole mitigation measure for

this significant impact, is not adequate to mitigate for the substantial loss of emigrating fish during non-pulse flow periods.² CDFW recommends the Project proponents revise the bypass flow requirement to maintain at least 13,000 cfs past all diversion facilities prior to the diversion of water to reduce impacts on out-migrating juvenile salmonids.

Furthermore, the Project does not include any protective bypass flow rates for Delta outflow, but as discussed in additional comments below, the Project is likely to affect Delta outflow significantly, with resulting impacts to aquatic biological resources. The DEIR/DEIS should propose Delta outflow requirements, in addition to bypass flow requirements, to adequately minimize the Project's impacts to downstream fisheries prior to diverting water from the Sacramento river.

The DEIR/DEIS identifies the elimination of fish passage at the Sites Reservoir dams as a less than significant impact because the extent to which fish species may move through this area is unknown and movement of these species is not considered an essential behavioral component of their life cycles. Yet, endemic species often reproduce in habitat dissimilar to rearing habitat (e.g. Sacramento splittail (*Pogonichthys macrolepidotus*)) and demonstrate the ability to move throughout an aquatic environment to access a variety of habitats. CDFW recommends a thorough review of existing scientific literature and studies related to the presence and life-history characteristics of endemic species in streams that would be blocked by the Sites Reservoir dams and/or nearby streams having similar attributes. Aquatic biological studies may also need to be performed to better understand which species are present and possibly impacted by the Project.

During operation of the Project, the DEIR/DEIS states that releases from Sites and Golden Gate dams would maintain flows of up to 10 cfs from October through May in Stone Corral and Funks creeks, respectively. The DEIR/DEIS anticipates these flows would be maintained close to natural levels, and therefore, the operational impacts to fish and aquatic habitats and fish passage in Funks and Stone Corral creeks below Sites and Golden Gate dams would be less than significant. This contradicts statements made in the DEIR/DEIS Chapter 6 section 6.2.6.1 and 6.2.6.2 that peak winter flows of approximately 2,000 cfs are common in Funks Creek and Stone Corral Creek may provide flows ranging from 600 to 2,000 cfs in December through April during wet water years. Therefore, maintaining flows of up to 10 cfs from October through May will not sufficiently mimic the variability of the hydrograph for Stone Corral and Funks creeks and will not provide the same amount of aquatic habitat or adequate protection for fish passage. In addition, these creeks are impacted by water diversions within their watersheds and the habitat being described as ephemeral may be due to anthropogenic degradation where natural flows would be more perennial in nature. To the extent the Project could exacerbate already degraded conditions in those creeks, the DEIR/DEIS should consider the potential impact to the hydrological regime of these streams. In order to maintain fish in good condition as

² Juvenile monitoring data suggests that increases in emigration towards the Delta occur at every pulse in river flow, even where the 3-day average flows are less than 15,000 cfs, and regardless if a pulse has previously occurred in the calendar month. These lower peak flow events typically occur in the October and November months when winter-run are present in the system and identified at current rotary screw trap monitoring locations. Additionally, during pulse events with 3-day average flows near 25,000 cfs, any further flow increases produced by storm events have also resulted in increased rotary screw trap catch, contradicting the DEIR/EIS's claim of decreased migration rates at flows above 25,000 cfs.

required by Fish and Game Code section 5937, base flows outside of the “October through May” period below reservoirs may need to have a perennial regime to support fisheries downstream.

Through its coordination with CVP facilities, the DEIR/DEIS identifies potential impacts of the Project to Central Valley steelhead (*Oncorhynchus mykiss irideus*) in the American river, but the impacts are generalized as less than significant under all of the Action Alternatives. However, lower flows and higher probabilities of temperature exceedances would occur in the summer months under all of the Action Alternatives. Water temperature is a major stressor to juvenile steelhead over the summer months in the American river. The 2009 National Marine Fisheries Service *Biological Opinion and Conference Opinion on the Long-term Operations of the Central Valley Project and the State Water Project* identifies flow and temperature criteria applicable to the U.S. Bureau of Reclamation's operations of Folsom Dam. CDFW recommends the Project's proposed operations avoid lower flows and higher probabilities of temperature exceedances in the American river, particularly over the summer, or that the DEIR/EIS identifies this impact as significant and subsequently identifies mitigation measures.

Delta Outflow

The DEIR/DEIS analysis of winter-spring outflow effects on longfin smelt (*Spirinchus thaleichthys*) does not reflect the basic construct of Project operations. The Project description states that diversions are proposed to occur at any time in the year, so long as bypass flows at upstream diversion locations are met. Additionally, Chapter 3.3.1.3 and page 10 of the Executive Summary identify the Projects ability to capture up to 1.8 Million Acre Feet (MAF) of the identified 3 MAF of water produced by unregulated Sacramento River tributaries (i.e. unregulated surface flow during the December – June time period). This capture of flows, in the higher-flow winter and spring months, would significantly reduce Delta outflow. Longfin smelt abundance correlates to Delta outflows in January through June. Yet, the DEIR/DEIS modeled proportional changes to longfin smelt populations of less than 0.1% between all alternatives and all water year types. This implies the Project would have virtually no effect on winter-spring outflow across all water year types, a conclusion that is not consistent with the proposed operations and assumed diversions. CDFW recommends the DEIR/DEIS be revised to contain a more thorough analysis of the proposed outflow impacts to longfin smelt.

The fall abiotic habitat analysis for Delta smelt demonstrates additional inconsistencies between operational assumptions and abilities and the resulting analysis. The DEIR/DEIS concludes it would provide average improvements to X2 through the fall for all water year types. The implication is that Project operations are improving fall conditions enough to change the average position of X2 by half a kilometer or more for the entire September – December period. A change in fall habitat of this magnitude would require a considerable amount of water, likely more than could be released through Project facilities. The ability of the Project to acquire such a large quantity of water for the benefit of fall abiotic habitat is inconsistent with the conclusion that there would be virtually no change to winter-spring outflows based on the aforementioned longfin smelt analysis.

CDFW recommends the DEIR/DEIS explicitly analyze the direct relationship between Project diversions and Delta outflow. This analysis should be accompanied by a qualitative discussion identifying when water would generally be acquired (diverted) throughout the year.

Floodplain habitat

By diverting flows from the Sacramento River, the Project has the potential to reduce spill events at the Tisdale and Fremont Weirs, and consequent flooding of the Sutter and Yolo Bypasses. Reductions in spills could prevent fish from accessing high quality habitat, reduce the amount of time fish have access to the habitat, or reduce the extent of habitat. Therefore, a meaningful and thorough analysis of this potential impact is crucial. However, there are several limitations in the current analysis that prevented meaningful review.

The DEIR/EIS includes Yolo Bypass flow and Sutter Weir spill analyses that are based on the number of years where there is at least one spill event over the weirs into the bypasses of varying amounts (0, 2,000, 4,000, 6,000, 8,000, and 10,000 cfs) with a duration of 0-10 days, 11-20 days, 21-30 days, 31-45 days, and greater than 45 days. These analyses are limited to the months of October through April, when juvenile salmonids and spawning splittail are anticipated to be present in the bypasses. However, Chinook salmon, Sacramento splittail, and other native fish species have been observed using the bypasses during the months of May and June. It is important to note that a reduction in high flow events may delay the timing of fish entering and exiting the bypasses. Therefore, the analysis should include the months of May and June. In addition, by focusing on only whether a given year includes a spill or not, the analysis identically treats a year with one spill event versus ten. By not analyzing the total number of spill events, the analysis does not consider migration behavior of fish entering and exiting the bypasses, and the full suite of months which native fish may utilize these critical habitats. CDFW recommends the analyses be based on the total number of spill events, instead of the number of years with one event or more. Finally, the analysis should include additional inundation amounts of 20,000 and 30,000 cfs to account for the migration timing and behavior of fish entering and exiting the bypasses due to a rapid increase in the inundated area in the Yolo Bypass when flows increase up to 40,000 cfs. Evaluation of the Project's potential to reduce these high spill events would provide essential context to the analysis, given the high benefits to habitat and species from these events.

Entrainment, fish screens, and pre-screen losses

The effects of the proposed Project operations on entrainment and impingement of juvenile fish species at the Delevan Pipeline Intake/Discharge Facilities are identified as potentially significant (Impact Fish-1e). However, the DEIR/DEIS does not identify the specific species impacted. CDFW recommends providing further clarity as to which fish species and life stages are impacted so appropriate avoidance or mitigation measures can be developed. Specifically, the current proposed fish screen design criteria may not provide adequate protection for larval or juvenile fish less than 30-mm in length. For example, a study at Red Bluff Diversion Dam (Borthwick and Corwin 2001) concluded actual fish mortality due to the screens is probably less than 5%. The study did not report larval fish (<30mm) due to the mesh size of the nets used. However, larval fish were frequently

observed during the study, particularly during the spring months. This indicates that the study's conclusions on screen efficacy did not consider larval fish, despite their being present in the area. Furthermore, sturgeon spawning is expected to take place on the Sacramento River during times when water diversions at all three intakes will be increased and Sacramento River flows will be reduced from Red Bluff to Delevan Pipeline under all Action Alternatives. Newly hatched green and white sturgeon larvae are subject to impingement on screened diversions, if the diversions are located near areas where adults are spawning.

The DEIR/DEIS identified effects of Project operations on entrainment and impingement at the TCCA Intake and the GCID Intake as potentially significant for Chinook salmon and steelhead but provided no evaluation of this impact for green sturgeon, white sturgeon, hardhead (*Mylopharodon conocephalus*), river lamprey (*Lampetra ayresii*), Pacific lamprey (*Lampetra tridentata*), and Sacramento splittail, all of which may be present in the vicinity of the diversions. In addition, the DEIR/DEIS identified no mitigation for the potentially significant impact to Chinook salmon and steelhead or other species at these facilities. CDFW recommends that the DEIR/DEIS disclose effects of green sturgeon, white sturgeon, hardhead, river lamprey, and Pacific lamprey entrainment and impingement at the TCCA and GCID intakes. CDFW also recommends appropriate avoidance and/or mitigation measures be proposed for each of the species impacted.

During dry and critical water years, the DEIR/DEIS shows that the Project operations would enable increased CVP/SWP exports from south Delta pumping plants and consequently increase Old and Middle River (OMR) reverse flows during the months of August, September, November, and January under all Action Alternatives. Although the DEIR/DEIS estimated increased entrainment losses for Delta smelt, the document does not address prescreen losses. For Delta smelt, prescreen losses that occur in waterways leading to the diversion facilities appear to be where most mortality occurs (Castillo et al. 2012). The impact analysis used for longfin smelt only relies on the winter-spring outflow model (Kimmerer et al. 2008) and does not analyze effects on entrainment and pre-screen loss relative to CVP/SWP exports for all longfin smelt life stages. Potential prescreen losses for Delta smelt and longfin smelt are reasonably foreseeable indirect impacts of the Project and should be included in the smelt impact analyses. Longfin smelt analysis should address entrainment losses and include variables such as OMR reverse flows and CVP/SWP exports. CDFW also recommends using the DSM2's Particle Tracking Model (DSM2-PTM) to analyze CVP/SWP entrainment effects on larval Delta and longfin smelt, using similar assumptions described in the Effects Analysis: State Water Project Effects on Longfin Smelt, prepared by CDFW in February 2009.

Mitigation

The DEIR/DEIS identifies potentially significant stranding, impingement, and entrainment impacts at the Delevan Facilities (Impact Fish-1e) broadly for juvenile fish species of management concern, and proposes mitigation measures Fish-1f (Sites Project Diversion Restrictions) and Fish-1e (Fish Salvage and Rescue Plan) to reduce the impacts to less than significant. However, mitigation measure Fish-1f appears to have been developed to minimize impacts on Chinook salmon and steelhead and does not address green sturgeon, white sturgeon, hardhead, river lamprey, and Pacific lamprey, all of which are

fish species of management concern. In addition, many of the details of mitigation measures Fish-1f and Fish-1e are deferred to the future, without adequate performance criteria to ensure impacts are minimized. Lastly, as discussed previously in terms of habitat impacts, the pulse flow protection events that were simulated for the impact analyses are far too limited to mitigate the Project impacts on stranding, impingement and entrainment to less than significant levels.

Juvenile outmigration monitoring data on the Sacramento River shows increased movement of juvenile salmon not only during a pulse flow event, but frequently on the leeward side of the hydrograph as well. Based on the criteria used for "qualified" events, the Project would not impose the proposed restrictions during many dry water years when juvenile and larval fish are vulnerable. The DEIR/DEIS analysis shows that based on the past seven years of flow data at Bend Bridge this restriction would apply to less than 2% of all days during that time period. CDFW recommends the DEIR/DEIS include improved mitigation measures that address all of the juvenile fish species impacted and describe how the mitigation will avoid or reduce impacts to less than significant. If it is not possible to include details of the mitigation measures, the mitigation measures should establish performance standards to evaluate the success of the proposed mitigation, provide a range of options to achieve the performance standards, describe under what circumstances the measure will be implemented, and explain why the measure is feasible.

Additionally, Impact Fish-1f (Modification of Pulse Flows and Entrainment during Diversions at the Delevan Facilities) was never identified or analyzed in Chapter 12, but is listed as a significant impact in Table 12-8, despite being partially discussed in Chapter 6 in relation to a modeling assumption and Mitigation Measure Fish 1-f. Thus, there is no analysis in the DEIR/DEIS to support the less-than-significant statement in Table 12-8. CDFW recommends a review and/or modification of Chapter 12 to ensure the DEIR/DEIS thoroughly and accurately discloses, analyzes, and identifies feasible mitigation measures for all potential impacts of the Project.

Fluvial Geomorphology

The analysis to support the conclusion that there are no potentially significant impacts to fluvial geomorphology appears to be incomplete. A number of key areas were summarily eliminated from analysis without sufficient justification. Detected impacts in other areas appeared to be designated as less-than-significant without discussion, justification, or data.

CDFW recommends the DEIR/DEIS analyze the potential impacts to fluvial geomorphology and riparian habitat within the primary study area related to Funks and Stone Corral creeks as well as unnamed streams and associated riparian habitat impacted by the Project.

Section 8.1 states that "Impacts along the Feather, and American rivers were also evaluated and discussed qualitatively because the numerical model used for the Sacramento River did not address these rivers." Changes in operations of Shasta Lake, Trinity Lake, Lake Oroville, and Folsom Lake proposed by the Project could change stream flow in the rivers downstream of these reservoirs. This would include both the American and the Feather rivers. CDFW recommends impacts to both the Feather and American

rivers be included in the numeric model and the DEIR/DEIS analyzes potential impacts. At a minimum, the reduced flows will have impacts related to changes in geomorphology at the confluence with each of these rivers.

The DEIR/DEIS identifies on pages 8-10 to 8-11 that “[a] grade control structure (with riprap on both banks) to decrease bank erosion susceptibility was created during construction of the new GCID Main Canal Intake, and suspended sediment deposits in the GCID canal Facilities and bedload deposits in the meander loop are removed periodically.” Additional and exacerbated erosion and sedimentation issues at these locations are a potential consequence of the Project, and CDFW recommends the DEIR/DEIS discuss the cause of the deposition, the frequency of dredging, and the impacts of dredging. The DEIR/DEIS should also include a discussion of the potential impacts of proposed increased withdrawals from the Sacramento River on the carrying capacity of the river. Increased surface water intake could reduce the rivers carrying capacity and therefore increase deposition at each location where surface water intake is increased.

The DEIR/DEIS used a calibrated SRH-Meander model that relied on the Upper Sacramento River Daily Operations Model (USRDOM) daily flows from 1980 to 2010 to predict channel meandering from 2010 to 2030. (DEIR/DEIS, section 8.3.2.2.) Thus, the model was calculated using flows from 1980 – 2010. The severity of the 2012-2017 drought indicates it is likely that we will experience periods of more extreme drought followed by periods of extreme flood events. The DEIR/DEIS does not include any discussion of how the Project will function under those conditions and how impacts may change. In addition, the CALSIM II includes data only through 2003, omitting 15 years of operations that are highly relevant to understanding the potential impacts of the Project. CDFW recommends the DEIR/DEIS include a discussion of how 15 years of omitted data may have affected the modeled results as well as how the Project will function under extreme drought and flood conditions.

The DEIR/DEIS assumes that because water and sediment are both already being diverted at the Delevan Pipeline, the concentration of the sediment in the river would remain unchanged, and therefore, concludes the Project, under each alternative, will have a less than significance impact on sediment concentration. This assumes there is a one to one relationship that holds true regardless of the reduced flow. The CDFW recommends the DEIR/DEIS include the additional scientific data necessary to support this assumption.

Lake and Streambed Alteration

The DEIR/DEIS refers to a regulatory definition of a stream in California Code of Regulations, title 14, section 1.72. CDFW does not rely on this definition of stream for purposes of Fish and Game Code section 1602, and as a matter of law, section 1.72 does not define “stream” for the purpose of Fish and Game Code section 1602. In addition, the applicability of section 1602 of Fish and Game Code to altered or artificial waterways is not solely based on the value of those waterways to fish and wildlife resources but also natural history of such waterways, the hydrologic conditions, the resources they support, and other similar values.

California Endangered Species Act

Section 4.2.5 summarizes the process for obtaining a consistency determination under Fish and Game Code section 2080.1, but it does not include discussion of take authorization under section 2081, subdivision (b) of the Fish and Game Code. CDFW recommends that the DEIR/DEIS include discussion of the incidental take permit process in addition to the consistency determination process.

Section 4.4.2 identifies "consultation" with CDFW regarding California Endangered Species Act as an anticipated State permit or authorization. "Consultation" applies to federal Endangered Species Act. CDFW recommends revising the DEIR/DEIS to identify that the Project will acquire appropriate take authorization under Fish and Game Code sections 2080.1 and 2081, subdivision (b).

Similarly, Table 4-1 lists Section 2081 Management Agreement as a type of permit or approval for take of State-listed species. Please clarify the intended method for obtaining incidental take authorization for State-listed endangered, threatened, and candidate species or rare plants pursuant to current State law.

The DEIR/DEIS identifies various CESA-protected species with the potential to occur within the Project site and may be affected by the Project. Take of species that are listed as endangered or threatened under CESA, or designated as candidates for such listing, is prohibited without appropriate authorization. (Fish & G. Code § 2080, 2085.) Take is defined as "hunt, pursue, catch, capture or kill or attempt to hunt, pursue, catch, capture or kill." (Fish & G. Code § 86.) CESA take authorization, should be obtained if the proposed Project has the potential to result in take of a State-listed threatened, endangered, or candidate species, or rare plants.

Issuance of a CESA permit by CDFW is subject to CEQA; therefore the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the proposed Project would impact CESA listed species, CDFW encourages the Authority to engage in early consultation, because significant modification to the proposed Project and mitigation measures may be required in order to obtain a CESA permit. A CESA permit may only be obtained if the impacts of the authorized take of the species are minimized and fully mitigated and adequate funding has been ensured to implement the mitigation measures. In addition, CDFW may only issue a CESA permit if the CDFW determines that issuance of the permit does not jeopardize the continued existence of the species. CDFW will make this determination based on the best scientific information available, and include consideration of the species' capability to survive and reproduce, including the species known population trends and known threats to the species.

Terrestrial Biological Resources

Deferred Mitigation

CEQA Guidelines section 15126.4, subdivision (a)(1)(B) states that formulation of mitigation measures should not be deferred until some future time. The DEIR/DEIS lists a number of mitigation measures for biological resources that rely on future approvals or agreements as a means of bringing identified significant environmental effects to below a

level of significance. For example, Mitigation Measures Wild-1a and 1b states that appropriately timed surveys shall be conducted for species as necessary in coordination with United States Fish and Wildlife Service (USFWS) and CDFW, and acreages of habitat loss shall be determined and compensated for in consultation with USFWS, CDFW, and the United States Army Corps of Engineers (USACE). As stated above because there is no guarantee these approvals or cooperation with all of the involved entities will ultimately occur or what measures they would contain, they should not be considered sufficient measures to reduce impacts to less than significant. The DEIR/DEIS must identify enforceable measures that will reduce the impacts to biological resources to a less-than-significant level.

CEQA requires that any activity resulting in loss of habitat, decreased reproductive success, or other negative effects on population levels of special-status species should be addressed in the DEIR/DEIS. There should be a clear impact assessment that outlines the temporary and permanent effects of the Project on all biological resources within and surrounding the Project site. If it is not possible to avoid impacts to special-status species, the DEIR/DEIS must identify feasible mitigation that reduces project impacts to a less-than-significant level.

Where it is infeasible to define mitigation measures with specificity, the DEIR/DEIS should establish performance standards to evaluate the success of the proposed mitigation, provide a range of options to achieve the performance standards, and commit the lead agency to successful completion of the mitigation. Mitigation measures should describe when the mitigation measure will be implemented, and explain why the measure is feasible. As discussed above, Mitigation Measures Wild-1a and 1b, and others, do not meet these requirements. Therefore, CDFW recommends the DEIR/DEIS include measures that are enforceable and do not defer the details of the mitigation to the future.

Fully Protected Species

The DEIR/DIES identifies multiple State fully protected species that have the potential to occur within the Project area. Take of fully protected species is unlawful and subject to enforcement under the Fish and Game Code. The only way for a project to obtain incidental take authorization for any fully protected species is through the development of a Natural Community Conservation Plan (NCCP) (Fish and G. Code, § 2800 et seq.). CDFW recommends the DEIR/DEIS include a discussion of potential for take of fully protected species, and identify measures to completely avoid take of these species.

Nesting Birds

All measures to protect nesting birds should be performance-based, meaning that they will be implemented in a way to ensure they reduce impacts and avoid take under potentially changing circumstances and depending on the individual species present. While some birds may tolerate disturbance within 250 feet of construction activities, other birds may have a different disturbance threshold and “take” could occur if the temporary disturbance buffers are not designed to reduce stress to an individual pair. CDFW recommends including performance-based protection measures for avoiding all nests protected under the Migratory Bird Treaty Act and Fish and Game Code sections 3503, and 3513. A 250-

foot exclusion buffer may be sufficient; however, a buffer may need to be increased based on the birds' tolerance level to the disturbance. Below is an example of a performance-based protection measure:

Should construction activities cause the nesting bird or raptor to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the exclusionary buffer will be increased such that activities are far enough from the nest to stop the agitated behavior. The exclusionary buffer should remain in place until the chicks have fledged or as otherwise determined by a qualified biologist.

Giant Garter Snake

The DEIR/DEIS states that the giant garter snake (*Thamnophis gigas*) has potential to occur within the Project site and may be affected by the Project. Giant garter snake is listed as a threatened species under CESA and as such it is afforded full protection under the Act.

The Project would have a substantial adverse effect on giant garter snake because the construction of the Project would require direct alteration of known giant garter snake habitat specifically during the construction of the Delevan Pipeline. The giant garter snake is a highly aquatic, wetland obligate species endemic to California. Historic habitat was largely in tule marshes in the Central Valley, ranging from Kern County to Butte County (Hansen and Brode 1980). Giant garter snakes typically occur in slow-moving, warm aquatic environments like marshes, sloughs, and ponds. They have adapted to using irrigation canals and rice fields as natural wetlands have been reduced in the Central Valley (Halstead et al. 2010). Small mammal burrows in upland habitat are generally used for cover and retreat during the active season and for refuge from flood waters during the dormant season (Halstead et al. 2015).

Causes of decline are largely related to habitat loss and fragmentation of wetland habitat. Up to 98 percent of historic giant garter snake habitat in the Central Valley has been lost to development, including agricultural lands (Ellis 1987). Mechanical vegetation management along canal banks such as disking, mowing, and dredging of canals can result in direct mortalities and destruction of basking vegetation and burrows used for refugia. Rodent control along canal or levee banks including burrow grouting can also contribute to loss of habitat and direct mortality.

Based on the foregoing, CDFW considers that Project impacts on giant garter snake would be significant. Due to the likely significant adverse effects to giant garter snake, the Department recommends obtaining take coverage through an incidental take permit which will likely include habitat replacement at a CDFW approved mitigation bank with available giant garter snake credits, or through land acquisition in fee or with a conservation easement to protect managed marsh habitat.

Transmission Line Risks

The Project has the potential to impact birds by increasing their exposure to electrical transmission lines and mortality from electrocution or striking the lines. This is of concern given the Project's location in relation to key resident and migratory bird habitat. The Project is located fewer than five miles from the Sacramento National Wildlife Refuge Complex (SNWR Complex), which is comprised of five National Wildlife Refuges (NWR; Sacramento, Delevan, Colusa, Sutter, and Sacramento river), located between Interstate 5 and Highway 99 in Tehama, Glenn, Butte, Colusa, and Sutter Counties. The proposed transmission line alignment runs approximately one mile south of the Sacramento NWR, along the northern edge of Delevan NWR, and fewer than five miles south of the Sacramento river NWR. The SNWR Complex provides nearly 70,000 acres of wetland, grassland, and riparian habitats for a wide variety of resident and migratory birds, including waterfowl, shorebirds, raptors, waterbirds, and songbirds. The SNWR Complex supports nearly 300 species of birds, many of which are State and/or federally protected, including, but not limited to: bald eagle (*Haliaeetus leucocephalus*), Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), greater sandhill crane (*Grus canadensis tabida*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), willow flycatcher (*Empidonax traillii*), and bank swallow (*Riparia riparia*). The SNWR Complex is located within the Pacific Flyway and provides wintering habitat and breeding grounds for thousands of waterfowl. Additionally, the SNWR complex provides recreational opportunities including bird and wildlife watching, auto tours, hiking, hunting, photography, biking, geocaching, fishing, and environmental education.

Utility structures such as transmission lines pose electrocution and collision risks to raptors and other birds (APLIC and USFWS 2005). Powerlines may kill hundreds of thousands of birds annually due to electrocution (Manville 2005). Electrocution has been documented as the cause of death of many raptor species in the United States, with eagles and hawks (of the Genus *Buteo*) typically at greatest risk (APLIC and USFWS 2005). Raptors such as golden eagles (*Aquila chrysaetos*), red-tailed hawks (*Buteo jamaicensis*), osprey (*Pandion haliaetus*), and great-horned owls (*Bubo virginianus*) are especially at risk for electrocution due to their large wingspans (APLIC and USFWS 2005). Eagles are the most commonly reported electrocuted birds, with golden eagles reported by Harness (1997) 2.3 times more frequently than bald eagles (*Haliaeetus leucocephalus*) in the western United States (Manville 2005). Red-tailed hawks and great-horned owls are the most commonly reported electrocuted hawk and owl species as reported by Harness (1997) and Harness and Wilson (2001) (Manville 2005). Additionally, birds other than raptors, such as corvids, small flocking birds, and wading birds, can also be electrocuted (APLIC and USFWS 2005). As many as 175 million birds may be killed annually due to collisions with powerlines (Manville 2005). Some studies have shown that waterbirds (e.g., waterfowl, gulls, shorebirds, etc.) are most susceptible to collisions near wetlands and raptors and passerines are most susceptible to collisions in upland habitats away from wetlands (Erickson, Johnson, and Young 2005).

CDFW is concerned the Project transmission line would pose an electrocution and collision risk to resident and migratory birds, including State and federally protected species, within the Project area. To reduce the risk of Project-induced electrocution and collision to birds, CDFW recommends the Project design and construct all transmission lines and associated

facilities in accordance with the current Avian Power Line Interaction Committee (APLIC) guidelines: *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* and *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* and revise the DEIR/DEIS as appropriate.

Botanical Resources

Throughout the Botanical Resources chapter of the DEIR/DIES the current California Rare Plant Ranks are referred to by "California Native Plant Society (CNPS) Rare Plant" lists, which is no longer the standard terminology. Additionally, some of these rankings are either incorrect, out of date, or missing threat ranks. CDFW recommends a review and/or modifications of this section to use current California Rare Plant Ranks terminology and correct rankings.

Page 13-15 of the Botanical Resources chapter indicates that land was not surveyed on properties for which authorized access was not obtained, private residences and yards, cemeteries, agricultural fields, and some bedrock stream channels and vertical slopes. This comprises a potentially large area within the Project area that may be impacted by Project activities, and may contain populations of rare plants. CDFW recommends completing an encompassing survey of all lands that could be impacted by the Project.

Botanical surveys were conducted in 1998 and 1999 within the reservoir footprint, and in 2000 through 2003 for potential conveyance routes, recreation areas, and road relocations. These surveys are out of date. CDFW recommends resurveying all areas associated within the Project area that would be impacted. Botanical surveys should be conducted over multiple years and multiple seasons/year to accurately document the species composition of a site. Some plants do not emerge every year, and it would be easy to miss these plants if only one survey is conducted. CDFW's recommends conducting surveys consistent with *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2009).

The mitigation measure Bot-1a for "Impact Bot-1" states that compensatory mitigation measures for vegetation community impacts will be implemented in coordination with USFWS, CDFW, CNPS, and USACE. As stated above, this measure provides no certainty these approvals or cooperation with all of the involved entities will ultimately occur or what measures would be undertaken. Coordination should not be considered a sufficient measure to reduce impacts to less than significant. The DEIR/DEIS must identify enforceable measures that will reduce the impacts to biological resources to a less-than-significant level. Where it is infeasible to define mitigation measures with specificity, the DEIR/DEIS should establish performance standards to evaluate the success of the proposed mitigation, provide a range of options to achieve the performance standards, and commit the lead agency to successful completion of the mitigation. Mitigation measures should also describe when the mitigation measure will be implemented and explain why the measure is feasible. Therefore, the CDFW recommends the DEIR/DEIS include measures that are enforceable and do not defer the details of the mitigation to the future.

Recreation

Section 21.1 states "Recreation is one of several benefits typically provided by public and private water supply projects." "Popular recreation activities in California fall into two categories: (1) water-dependent activities, such as boating, waterskiing, swimming, and fishing; and (2) water-enhanced activities, such as wildlife viewing, camping, hiking, and hunting." However, the analysis in the DEIR/DEIS focuses solely on boat ramp accessibility, without analyzing potential impacts to these other recreational resources. CDFW recommends that the DEIR/DEIS discuss potential impacts to these water-enhanced activities in addition to the operations-related recreational activities that were evaluated.

Section 21.3.2.2 states the analysis only evaluated the operational portion of recreation-day value, meaning that the analysis did not consider the development of a recreational fishery, or a plan to create a sustainable fishery for recreation. The section states the guidelines used are intended to express the net benefit of a reservoir to a recreationist in terms of two equally weighted factors: (1) variety and quality of recreation, and (2) aesthetic qualities of the site. CDFW recommends providing an explanation as to why only some components of recreational activities were evaluated.

As cited in DEIR/DEIS, Table 12-5, several gamefish have been documented in the creeks within the inundation area including largemouth bass (*Micropterus salmoides*), redear sunfish (*Lepomis microlophus*), bluegill (*Lepomis macrochirus*), green sunfish (*Lepomis cyanellus*), Chinook salmon and Sacramento pikeminnow (*Ptychocheilus grandis*). The DEIR/DEIS also states that there are several stock ponds that likely hold gamefish and children have been observed fishing in the area. There is very little data on what recreational value the existing fisheries provide. The inundation area has the potential to provide quality recreational fisheries with the appropriate foresight. CDFW recommends a fisheries development plan outlining target species composition for Sites Reservoir including stocking strategy, habitat enhancement measures, and monitoring efforts to be included.

The DEIR/DEIS states that five recreation areas are possible but only three will be constructed. CDFW recommends including a detailed discussion of the methods to be used to prioritize the potential recreation areas to be constructed. CDFW recommends that any potential recreation areas within drawdown areas be prioritized for wildlife oriented recreation. In addition, CDFW recommends the DEIR/DEIS include a discussion of all recreational uses that will be provided by Sites Reservoir. Within this discussion, the document should include hunting as a compatible use in the recreation areas and lands surrounding the proposed reservoir.

Cumulative Impacts

The DEIR/DEIS concludes that, across all impact areas, there will be no cumulative impacts resulting from the Project. Based on population trends of native anadromous and pelagic fish that are steadily declining under existing regulatory conditions, CDFW considers that the additional extraction of water at the proposed bypass flow rates would exacerbate concerns and generate cumulatively considerable impacts. Table 35-1

provides a summary of present and foreseeable actions included in the cumulative impact analysis, but it appears to exclude a number of significant activities affecting fish and wildlife resources in the Project area. CDFW recommends that a list of relevant cumulative projects be provided with each resource section and the lead agency review for completeness.

Some of the programs, plans, and policies missing include: the lower American River Modified Flow Management Standard, the State Water Project Contract Extension, the Agricultural Drainage Selenium Management Program, the West Sacramento Levee Improvements Program, the Central Valley Flood Protection Plan, FloodSAFE California, the Lower Yolo Restoration Project, the Contra Costa Water District Intake and Pump Station (Alternative Intake Project), 2009 National Marine Fisheries Service Biological Opinion and Conference Opinion for the Coordinated Long-Term Operation of the CVP/SWP, the 2008 United States Fish and Wildlife Service Biological Opinion for Delta smelt for the Coordinated Long-Term Operation of the CVP/SWP, the Central Valley Flood Management Program, the San Joaquin River Restoration Program, the Recovery Plan for Sacramento-San Joaquin Delta Native Fishes, the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Implementation Plan, the Delta Plan, the California Water Action Plan, California EcoRestore, and the Davis-Woodland Water Supply Project.

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.

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

Pursuant to Public Resources Code §21092 and §21092.2, CDFW requests written notification of proposed actions and pending decisions regarding the proposed Project. Written notifications should be directed to: California Department of Fish and Wildlife North Central Region, 1701 Nimbus Road, Rancho Cordova, CA 95670.

CDFW appreciates the opportunity to comment on the DEIR/DEIS to assist in identifying and mitigating Project impacts on biological resources. CDFW personnel are available for consultation regarding biological resources and strategies to minimize and/or mitigate impacts. Questions regarding this letter or further coordination should be directed to Jeff Drongesen, Environmental Program Manager at (916) 207-2823 or Jeff.Drongesen@wildlife.ca.gov.

Sincerely,



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Acting Regional Manager

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