33.8 Comments from State Agencies and Responses

This section contains a copy of comment letters (and any attachments) from the State government agencies listed in Table 33.8-1. As noted previously, each comment in the comment letters was assigned a number, in sequential order (note that some letters may have more than one comment). The numbers were then combined with an abbreviation for the State agency (example: DFW-1).

Responses to the comments follow the comment letters, and are also numbered, corresponding to the numbers assigned in the letters. The letters and associated responses are sorted alphabetically by abbreviation and appear in the section in that order.

Table 33.8-1. State Agencies Providing Comments on Draft Environmental Impact Statement

Abbreviation	Agency
CTRAN1	California Department of Transportation
CTRAN2	California Department of Transportation
CVFPB1	Central Valley Flood Protection Board
CVFPB2	Central Valley Flood Protection Board
CVRWQCB	Central Valley Regional Water Quality Control Board
DFW	Department of Fish and Wildlife
DSC1	Delta Stewardship Council
DSC2	Delta Stewardship Council
DWR	Department of Water Resources
SRCAF	Sacramento River Conservation Area Forum
SRCAF2	Sacramento River Conservation Area Forum
SRTA	Shasta Regional Transportation Agency
SWRCB	State Water Resources Control Board

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33.8.1 California Department of Transportation

CTRAN1

From: "Stoughton, David W@DOT" <david.stoughton@dot.ca.gov>
Date: July 18, 2013, 2:29:50 PM PDT
To: "kchow@usbr.gov" <kchow@usbr.gov>
Cc: "Flora, Kevin S@DOT" <kevin.flora@dot.ca.gov>
Subject: Lake Shasta meeting yesterday

Good afternoon Katrina,

CTRAN1-1

I enjoyed meeting you the other day here in Sacramento at the public review and comment meeting on the Lake Shasta EIS. Before the meeting I had a chance to review a few of the chapters that might be relevant to what I do at Caltrans……2d hydraulic modeling at bridge sites on state routes. You mentioned that what might be more helpful for me to review is the Environmental Feasibility Study done in 2012….I was wondering if you would be able to send a copy of that to me?

I realize you're probably on the road, so no worries if you can't get to it right away. I'll be out of town starting tomorrow and will be back on July 29th. The business card I gave you has our mailing address on it, but just so you use the right one, our address is:

Dave Stoughton
Structure Maintenance & Investigations, MS 9-1/9I
1801 30th Street
Sacramento, CA 95816-8041

Thanks for your time,

Dave

David Stoughton, PE
Structure Hydraulics
Structure Maintenance & Investigations
(916) 227-8015

Responses to Comment from California Department of Transportation

CTRAN1-1: The requested information was sent to the commenter.

33.8.2 California Department of Transportation

CTRAN2

STATE OF CALIFORNIA - CALIFORNIA STATE TRANSPORTATION AGENCY — Edmund G. Brown Jr. Governor

DEPARTMENT OF TRANSPORTATION
OFFICE OF COMMUNITY PLANNING
1657 RIVERSIDE DRIVE
REDDING, CA 96001
PHONE (530) 229-0517
FAX (530) 225-3020

Flex your power!
Be energy efficient!

September 19, 2013

IGR/CEQA Review
Sha-Admin
Shasta Lake Water Resources Investigation
Draft Environmental Impact Statement
SCH# 2013082040

Ms. Katrina Chow
Bureau of Reclamation
2800 Cottage Way, MP-700
Sacramento, CA 95825-1893

Dear Ms. Chow:

Thank you for the opportunity to review the Shasta Lake Water Resources Investigation Draft Environmental Impact Statement (DEIS) to consider five alternatives to raise Shasta Dam.

CTRAN2-1 Our concerns relate primarily to traffic and circulation impacts. Impact Trans -5 recognizes that accelerated degradation of surface transportation facilities in the primary study area may occur (p. ES-113, 20-34). This impact is potentially significant to State Route (SR) 151 (Shasta Dam Boulevard) that begins at Shasta Dam and ends at Interstate 5 (I-5), 6.9 miles away. Other routes that could be affected include I-5, SR 273, SR 299, and SR 44. The impact will depend on where material sources will be transported from. As described in the DEIS, 95-177 truck trips per day for 4.5 to 5 years would occur with a maximum haul route distance of up to 20 miles (p. 20-9). We agree with Mitigation Measure Trans-5 to identify and repair roadway segments damaged by the project.

CTRAN2-2 We also suggest that prior to commencing operations a pre-project condition report of the roadway segments should be prepared to document the before construction roadway conditions.

CTRAN2-3 Based on the potential impact to the aforementioned routes, we agree that the contractor(s) shall notify the owner of the right of way (ROW) in writing and request conditional approval to use the ROW as a haul route. Before commencement of hauling activities the contractor(s) shall implement the conditions of approval for use of the haul route ROW. Conditions may include constructing repairs to damaged lengths of roadway or the payment of fees to compensate for roadway wear resulting from truck trips (pp. 20-52, 53).

CTRAN2-4 Caltrans is the owner/operator of the State routes and requests that an interagency meeting be required to agree on a maintenance agreement for the routes impacted by the project.

CTRAN2-5 I-5/Pit River Bridge - The alternatives address bridge pier and bearing protection modifications to the I-5/Pit River Bridge. These modifications would provide protection to the bearings and are more fully described in the Engineering Summary Appendix (pp 4-12-14). However, the modifications would result in added maintenance responsibilities. We request that an interagency meeting be required to agree upon a maintenance agreement for the new facilities proposed to modify the I-5/Pit River Bridge.

CTRAN2-6 Scenic Highways - Page 19-73 states that both I-5 and SR 151 are designated as State Routes eligible for official scenic highway designation. SR 151 is a State designated scenic highway, please correct this reference. The correct reference is made on page 19-84.

"Caltrans improves mobility across California"

Ms. Katrina Chow
Shasta Lake Water Resources Investigation
Draft Environmental Impact Statement
SCH# 2013082040
September 19, 2013
Page 2

If you have any questions, or if the scope of this project changes, please call me at (530) 225-3369.

Sincerely,

MARCELINO GONZALEZ
Local Development Review
Office of Community Planning
District 2

Responses to Comments from California Department of Transportation

CTRAN2-1: The commenter's support for Mitigation Measure Trans-5 is noted. No revisions to the DEIS are required.

CTRAN2-2: Mitigation Measure Trans-5 on page 20-52 has been revised as requested.

CTRAN2-3: The commenter's support for Mitigation Measure Trans-5 is noted. No revisions to the DEIS are required.

CTRAN2-4: Reclamation commits to interagency meetings with Caltrans before the start of construction if the action is approved by Congress.

CTRAN2-5: Reclamation commits to interagency meetings with Caltrans before the start of construction if the action is approved by Congress.

CTRAN2-6: Chapter 19, "Aesthetics and Visual Resources," Section 19.1.1, "Visual Environment," will be revised in the Final EIS to reflect that State Route 151 is a State designated scenic highway.

33.8.3 Central Valley Flood Protection Board

CVFPB1

Fwd: Shasta Lake Water Resources Investigation Draft Environmental Impact Statement (DEIS) June 2013 (Document Number: 2013-15659)

KATRINA CHOW <kchow@usbr.gov> Wed, Oct 23, 2013 at 1:08 PM
To: KATHLEEN DUNCAN <kduncan@usbr.gov>

Sent from my iPhone

Begin forwarded message:

From: "Herota, James@DWR" <James.Herota@water.ca.gov>
Date: September 30, 2013, 4:55:08 PM PDT
To: "KChow@usbr.gov" <KChow@usbr.gov>
Cc: "Butler, Eric@DWR" <Eric.Butler@water.ca.gov>
Subject: Shasta Lake Water Resources Investigation Draft Environmental Impact Statement (DEIS) June 2013 (Document Number: 2013-15659)

Dear Ms. Chow,

CVFPB1-1 Please accept this update, staff of the California Central Valley Flood Protection Board are finalizing comments on the Shasta Lake Water Resources Investigation Draft Environmental Impact Statement (DEIS) June 2013 (78 Federal Register 39315; Document Number: 2013-15659). The comment letter will be submitted tomorrow.

Sincerely,

James Herota

Senior Environmental Scientist

Central Valley Flood Protection Board

(916) 574-0651

James.Herota@water.ca.gov

Responses to Comment from Central Valley Flood Protection Board

CVFPB1-1: Comment noted.

33.8.4 Central Valley Flood Protection Board

CVFPB2

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY EDMUND G. BROWN JR., GOVERNOR

CENTRAL VALLEY FLOOD PROTECTION BOARD

3310 El Camino Ave., Rm. 151
SACRAMENTO, CA 95821
(916) 574-0609 FAX: (916) 574-0682
PERMITS: (916) 574-2380 FAX: (916) 574-0682

OCT 22 2013

KDuncan
23 Oct 13
to: KChow

September 30, 2013

Ms. Katrina Chow
Bureau of Reclamation
2800 Cottage Way
Sacramento, California 95825

Subject: Shasta Lake Water Resources Investigation
Draft Environmental Impact Statement (DEIS) June 2013;
78 Federal Register 39315; Document Number: 2013-15659

Dear Ms. Chow:

The Central Valley Flood Protection Board (Board) staff appreciates the opportunity to review and comment on the subject document. We understand the proposed Shasta Lake Water

CVFPB2-1 Resources project is intended to improve operational flexibility of the Delta watershed system through modifying the existing Shasta Dam and Reservoir.

CVFPB2-2 Our comments are intended to clarify the Board's authority for regulatory compliance. Shasta Dam and Lake are part of the Central Valley Project, which is exempt from Board jurisdiction per California Code of Regulations, Title 23 (CCR 23) Section 2(c) and (d). The Board may,

CVFPB2-3 however, have concerns about adverse flooding impacts downstream of Keswick Dam, along the Sacramento River to the Delta, due to sedimentation, erosion, and modified ecosystem resource impacts from operation of the proposed project. As a result, the Board may require

CVFPB2-4 encroachment permits to be obtained by State agencies, non-federal, and non-government agencies.

Regulatory Compliance

CVFPB2-5 According to the Regulatory Framework, as described in the project's Draft Environmental Impact Statement (DEIS) on page 3-60, "*Under CCR Title 23, the Central Valley Flood Protection Board (formerly called the State of California Reclamation Board), issues encroachment permits to maintain the integrity and safety of flood control project levees and floodways that were constructed according to the flood control plans adopted by the board or the California Legislature.*" This description only partially describes the Board's authority.

Recommendation – Board staff recommends revising this description as follows:

- The Board enforces standards for the construction, maintenance, and protection of adopted flood control plans that will protect public lands from floods. The jurisdiction of the Board includes the Central Valley, including all tributaries and distributaries of the Sacramento River, the San Joaquin River, and designated floodways (California Code of Regulations, Title 23, Section 2). The Board has all the responsibilities and authorities

necessary to oversee future modifications as approved by the U.S. Army Corps of Engineers (Corps) pursuant to assurance agreements with the Corps and the Corps' Operation and Maintenance Manuals under Title 33 Code of Federal Regulations, Section 208.10 and Title 33 United States Code, Section 408.

CVFPB2-5 CONTD

The Board, in cooperation with the Corps, is responsible for controlling flooding along the Sacramento and San Joaquin Rivers and their tributaries. The Board maintains the integrity of the existing flood control system and designated floodways through its regulatory authority by issuing permits for encroachments. Construction and habitat restoration projects within the jurisdiction of the Board are required to meet standards for the construction, maintenance, and protection of adopted plans of flood control that will protect public lands from floods. The State, through the Board, shares in the costs of construction, assumes responsibility for ensuring the operation and maintenance of the facilities, and holds the federal government harmless from liability. For the Board's flood management projects, the Board delegates operation and maintenance to the Department of Water Resources (DWR), or local maintaining agencies.

Effects on Flood Flows

1. Impacts to Regulated Streams

CVFPB2-6

The DEIS discusses the potential impacts on biological resources, however, it fails to analyze impacts to regulated streams under Board jurisdiction in accordance with CCR 23, Section 112, including the Sacramento River below Keswick Dam and the tributaries to the Sacramento River between Keswick Dam and Red Bluff. These streams include Battle Creek (Tehama County), Bear Creek (reach within designated floodway of the Sacramento River), Clear Creek (Sacramento River to Whiskeytown Dam), Cow Creek (Shasta County to 0.6 miles upstream of Millville Plains Road), Cottonwood Creek (Shasta and Tehama county border to Dutch Gulch Dam), and Cottonwood Creek South Fork (Tehama County).

Recommendation – Board staff recommends that the DEIS analyze impacts to regulated streams under Board jurisdiction in accordance with CCR 23, Section 112.

2. Impacts due to Mitigation Measure Geo-2 (CP2)

CVFPB2-7

According to DEIS Mitigation Measure Geo-2 (CP2), page 4-97: *"Replace Lost Ecological Functions of Aquatic Habitats by Restoring Existing Degraded Aquatic Habitats in the Vicinity of the Impact. The loss of 18.5 miles of intermittent and perennial streams (including 6.2 miles of streams with a gradient less than 7 percent) will be mitigated by compensating for the impact by replacing or providing substitute resources or environments. Compensation will be accomplished by restoring and enhancing the aquatic functions of existing, degraded aquatic habitats in or near the Shasta Lake and vicinity area. Examples of techniques that may be used include channel and bank stabilization, channel redirection, channel reconstruction, culvert replacement and elimination of barriers to fish passage, and enhancement of habitat physical structure (e.g., placement of woody debris, rocks). The nature and extent of the restoration and enhancement activities will be based on an assessment of the ecological functions that are lost as a consequence of implementing this alternative. Implementation of this mitigation measure would reduce Impact Geo-2 (CP1) to a less-than-significant level."*

The DEIS includes mitigation measures that may have adverse impacts on flood flows in waterways under Board jurisdiction. It is foreseeable that implementation of these mitigation measures may result in significant adverse impacts to flood flows.

CVFPB2-7 CONTD **Recommendation** – Board staff recommends revising Mitigation Measure Geo-2 to include a long term management plan to manage flood flows during peak flood conditions to minimize flood damage. Riparian preservation and enhancement in mitigation areas within floodways may expose people or structures to potential substantial adverse effects, including the risk of loss, or injury, or death. The long term management plan should include a Safe Harbor Agreement that would allow the channel and levee maintaining agencies to conduct maintenance in the event of the need for take of covered or listed species due to required maintenance.

3. Impacts due to Mitigation Strategy under Development

Page 1-35 of the DEIS states *"Off-Site Mitigation for Impacts on Biological Resources, Details about off-site opportunities to mitigate impacts on biological resources in the primary study area are not yet available. Potential mitigation lands containing wetland and special-status species habitat comparable to those that would be affected by the project have been identified near the study area. A comprehensive mitigation strategy is currently under development. Additional discussion of how these lands may be applied as mitigation and at what ratios will be provided in future documents. A discussion of mitigation for loss of habitat through preservation and enhancement in mitigation areas will be included in future documents."*

CVFPB2-8

Because the comprehensive mitigation strategy is not yet available for review, Board staff is unable to determine whether feasible alternatives or mitigation measures will be presented to lessen adverse impacts on flood flows.

Request – Board staff requests that you provide the comprehensive mitigation strategy to Board staff for review upon its completion. Additional mitigation measures for channel and levee improvements and maintenance to prevent and/or reduce hydraulic impacts may be required.

4. Impacts due to Change in Flow Regimes

Page 11-72 of the DEIS states, *"By altering reservoir storage and releases, the project would change flow regimes in downstream waterways. In turn, these alterations to the flow regime could affect fishery resources and important ecological processes on which the fish community depends, particularly their instream and seasonal floodplain habitats along waterways immediately downstream from reservoirs."*

CVFPB2-9

Board staff is concerned about the potential for increased sedimentation and erosion within floodways under Board's jurisdiction due to direct and indirect effects of altering reservoir releases and changes in flow regimes.

Recommendation – Board staff recommends including mitigation measures to minimize peak flood flows during flood season, primarily from November 1 through April 15.

Ms. Katrina Chow
September 30, 2013
Page 4 of 4

Encroachment Permits

CVFPB2-10 Non-federal, non-governmental, and State agencies are required to obtain a Board Encroachment Permit in accordance with CCR 23. Federal agencies should consult with Board staff and consideration should be made early in the project design phase to provide maximum flexibility to avoid increasing potential adverse flood impacts.

Copies of the Board's Encroachment Permit Application forms and complete text of our Regulations can be found on the Board's website at http://www.cvfpb.ca.gov/regulations/.

If you have any questions regarding these recommendations or requests, please contact Ali Porbaha, Senior Engineer, at (916) 574-2378, or Mohammad.Porbaha@water.ca.gov, or James Herota, Senior Environmental Scientist, at (916) 574-0651, or James.Herota@water.ca.gov.

Sincerely,

Jay S. Punia
Executive Officer

cc: Governor's Office of Planning and Research
State Clearinghouse
1400 Tenth Street, Room 121
Sacramento, California 95814

Responses to Comments from Central Valley Flood Protection Board

CVFPB2-1: Please refer to Master Comment Response GEN-1, "Comment Included as Part of the Record."

CVFPB2-2: Please refer to Master Comment Response GEN-1, "Comment Included as Part of the Record."

CVFPB2-3: Please refer to Master Comment Response FM-6, "Effects to Downstream Flooding."

CVFPB2-4: Please refer to Master Comment Response FM-6, "Effects to Downstream Flooding."

CVFPB2-5: Recommendations submitted by the comment author have been incorporated into Chapter 3, "Considerations for Describing Affected Environment and Environmental Consequences," Section 3.4.2 "State," of the Final EIS.

CVFPB2-6: Please refer to Master Comment Response FM-6, "Effects to Downstream Flooding."

CVFPB2-7: Mitigation Measure GEO-2 in EIS Chapter 4, "Geology, Geomorphology, Minerals, and Soils," Section 4.3.5, "Mitigation Measures" refers to mitigation to take place only in the Lake Shasta and Vicinity portion of the primary study area (as described in Chapter 1, "Introduction," Section 1.3, "Setting and Location") and not downstream from the dam on the Sacramento River.

CVFPB2-8: Please refer to Master Comment Response CMS-1, "EIS Mitigation Plan."

CVFPB2-9: Please refer to Master Comment Response FM-6, "Effects to Downstream Flooding," and Master Comment Response DSFISH-3, "Fish Habitat Restoration."

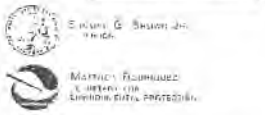
CVFPB2-10: Thank you for providing this information related to the CVFPB encroachment permit process. Your comment does not raise a significant issue with the DEIS, and therefore, does not require a specific response.

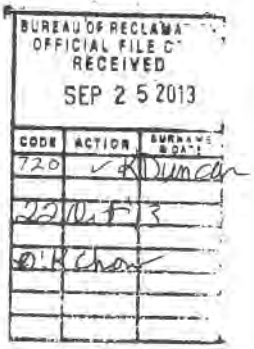
33.8.5 Central Valley Regional Water Quality Control Board

CVRWQCB

Water Boards

Central Valley Regional Water Quality Control Board





11 September 2013

Ms. Katrina Chow, Project Manager
U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region
2800 Cottage Way
Sacramento, CA 95925-1898

COMMENTS ON THE SHASTA LAKE WATER RESOURCES INVESTIGATION DRAFT ENVIRONMENTAL IMPACT STATEMENT, SHASTA COUNTY

Thank you for the opportunity to review the *Shasta Lake Water Resources Investigation Draft Environmental Impact Statement* (Draft EIS). The Central Valley Regional Water Quality Control Board (Central Valley Water Board) has regulatory authority over any projects that have the potential to discharge wastes that may impact water quality within the Sacramento River drainage, therefore our comments on the Draft EIS focus on water quality and the protection of the beneficial uses assigned to Shasta Lake and the Sacramento River below Shasta Dam.

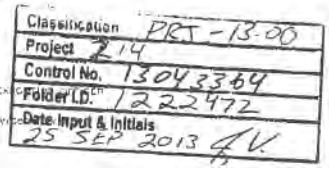
CVRWQCB-1

The specific beneficial uses assigned to water bodies in the Central Valley Region are listed in the document titled *Water Quality Control Plan for the Sacramento River and the San Joaquin River Basins*, Fourth Edition, revised October 2011 (Basin Plan). Table II-1 of the Basin Plan, *Surface Water Bodies and Beneficial Uses*, lists the beneficial uses assigned to Shasta Lake as Municipal and Domestic Supply, Agricultural and Industrial Water Supply, Contact and Non-contact Recreation, Warm and Cold Freshwater Habitat, Warm and Cold Water Spawning, and Wildlife Habitat. The beneficial uses assigned to the Sacramento River from Shasta Dam to the Colusa Basin Drain include those assigned to Shasta Lake, and also include Warm and Cold Water Migration of Aquatic Organisms and Navigation.

CVRWQCB-2

The Board's primary concerns about the project are related to the impacts to water quality that will be caused by the sediment that will be generated by the raised water level. The comments discussed below reference Table S-3, *Summary of Impacts and Mitigation Measures*.

- Impact WQ-4, Page ES-46:
  "Long-Term Sediment Effects that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses in Shasta Lake or its Tributaries"



CVRWQCB-2 CONTD

This impact is listed as "Long-term" and "PS" (Potentially Significant) before mitigation, and as "LTS" (Less Than Significant) after mitigation. The proposed mitigation is to "Prepare and Implement a Stormwater Pollution Prevention Plan that Minimizes the Potential Contamination of Surface Waters, and Comply with Applicable Federal Regulations Concerning Construction Activities". While the specifics of the Stormwater Pollution Prevention Plan are not provided, we believe the quantity of sediment generated by the periodic inundation of the additional lakeshore

CVRWQCB-3

will be on the scale of hundreds of thousands of cubic yards and, despite available mitigation measures, the direct and indirect impacts to water quality will be significant and unavoidable.

CVRWQCB-4

Further, once clay-sized soil particles are suspended in the water column, they do not readily settle out and can cause widespread impacts for an extended period of time.

CVRWQCB-5

Shoreline processes, including wave action and changing reservoir levels, along with storm water runoff, will provide a constant mechanism by which soil in the new area of inundation can be constantly eroded and sediment transported into the lake, resulting in elevated levels of suspended sediment and turbidity. The current area of inundation, where all residual soil has been washed away (leaving only bare rock), provides an example of the potential magnitude of the issue. Further, if existing timber and vegetation are removed from the new area of

CVRWQCB-6

inundation, this will disturb the native soil and will remove the soil-retaining vegetation and root structures, thus exacerbating the situation. It is also unknown how often the lake elevation will

CVRWQCB-7

rise into the new inundation zone, and how long it will take for the soil erosion and transport to be reduced to a degree of insignificance.

CVRWQCB-8

Increases in suspended sediment and the associated increase in turbidity will have numerous impacts on domestic water supplies, aquatic life, and wildlife habitat. Three public domestic

CVRWQCB-9

water suppliers withdraw their water directly from Shasta Lake: Shasta Lake City, Mountain Gate, and Jones Valley. The increased sediment in the raw water supply will require additional filtration and treatment, and will result in increased costs to the rate payers.

CVRWQCB-10

The increase in suspended sediment and turbidity will also impact aquatic life, including benthic invertebrates, the zooplankton that provide a food source for fish, and the aquatic environment that the aquatic life rely upon for spawning and habitat. The increase in turbidity will also reduce

CVRWQCB-11

the ability of predatory birds (i.e., Bald Eagles, Osprey, etc.) to visually spot and capture fish, which are their main food supply.

CVRWQCB-12

Shasta Lake is currently on the Federal Clean Water Act Section 303(d) list of Impaired Water Bodies for mercury, because Shasta Lake is among many lakes and reservoirs in California where fish have been found with concentrations of mercury in their tissue that may warrant limited consumption by humans. Inorganic mercury enters reservoirs and other water bodies through a variety of sources, including erosion from soils naturally enriched with mercury and from runoff from mining sites. Increased sediment loads to reservoirs can also introduce organic matter. This can contribute to the mercury impairment because methylmercury can bind to the organic matter and thus move up the food chain via phytoplankton and zooplankton, eventually bio-accumulating in game fish such as bass. The Central Valley Water Board is

CVRWQCB-12 CONTD concerned that additional inputs of inorganic mercury and organic matter caused by erosion and sediment delivery generated by the inundation of additional lakeshore has the potential to accelerate the process by which methylmercury is formed and makes its way up the food chain.

CVRWQCB-13 Based on the discussion above, we believe the Level of Significance of the long-term impact of sediment on Shasta Lake to be Significant and Unavoidable.

- Impact WQ-10, Page ES-49:
  "Long-Term Sediment Effects that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses in in the Upper Sacramento River"

CVRWQCB-14

This impact is listed as "Long-term" and "LTS" (Less than significant), and therefore no mitigation is needed or proposed.

However, the increase in fine-grained suspended sediment in Shasta Lake would also increase the suspended sediment in the Sacramento River downstream of Shasta Lake. The City of Redding and the Bella Vista Water District obtain their municipal water supply from the Sacramento River approximately 8 miles downstream of Shasta Dam. As discussed above, the increase in suspended sediment will increase the costs of treating the domestic water supply.

CVRWQCB-15

The transport of additional suspended sediment from Shasta Lake into the Sacramento River may also elevate the ambient concentrations of priority pollutant metals (i.e., copper, zinc, etc.) in the Sacramento River. Many of these metals are already near or at the water quality objective that is designed to ensure the protection of beneficial uses. If concentrations of these metals increase, it could eliminate assimilative capacity in the river, thereby increasing regulatory compliance costs for the Cities of Redding and Anderson, as well as other downstream communities that discharge wastewater to the Sacramento River. Without assimilative capacity in the River, these communities may be required to expend their limited resources on extensive and costly treatment plant upgrades and/or enforcement actions as required by the federal Clean Water Act and the California Water Code. The potential for such an increase in metals concentrations must be thoroughly investigated and, if indicated, appropriate mitigation measures must be developed and implemented.

CVRWQCB-16

CVRWQCB-17 Based on the discussion above, we believe the Level of Significance of the long-term impact of sediment on the Upper Sacramento River to be Significant and Unavoidable.

The project will have a number of significant and unavoidable direct and indirect impacts on water quality and the environment that cannot be mitigated to the point where these impacts could be considered less than significant. It is therefore appropriate for the Bureau of Reclamation to investigate potential for off-site projects to enhance water quality and the environment to help offset the environmental impacts of the project.

CVRWQCB-18

Potential mitigation projects that may help to protect and enhance the beneficial uses of surface waters include:

CVRWQCB-19

1) Construction and operation of more advanced wastewater treatment and disposal systems for sewage generated from recreational activities on Shasta Lake;

CVRWQCB-20

2) Assistance with remedial efforts at abandoned mines within the Shasta Lake watershed, including the Mammoth, Golinsky, Bully Hill, and Rising Star mines, which discharge acid mine drainage to Shasta Lake. Such assistance could include financial aid and facilitating land exchanges between the private mine owners and the U.S. Forest Service so as to provide the mine owners with flat ground suitable for the installation of treatment systems for the mine drainage;

CVRWQCB-21

3) Assistance with remedial efforts at abandoned mines within the "Primary Study Area" including the Greenhorn Mine on Willow Creek upstream of Whiskeytown Lake and the Afterthought Mine on Little Cow Creek;

CVRWQCB-22

4) Assistance with remedial efforts at abandoned mines contributing mercury to the Sacramento River in the "Extended Study Area".

CVRWQCB-23

5) Assistance with watershed protection and enhancement projects in the Pit, McCloud, Upper Sacramento River and major tributaries to Shasta Lake that focus on reducing chronic sources of sediment (e.g., roads and historic mining features).

Thank you for your consideration of our comments regarding water quality on the Draft EIS. If you have any questions, please contact Katie Bowman at (530) 226-3458, or Philip Woodward at (530) 224-4853, or the letterhead address.

Pamela C Creedon
Executive Officer

PVW:

cc:
Ms. Michelle Denning, U.S. Dept of Interior, Bureau of Reclamation, 2800 Cottage Way, Sacramento, CA 95825-1898
Ms. Alexis Strauss, U.S. EPA, Region 9, San Francisco
Mr. Tom Howard, State Water Resources Control Board, Sacramento
Mr. Clint Snyder, Central Valley Regional Water Quality Control Board, Redding

U:\Clerical\Mines\PWoodward\DRAFTS 2013\Chow_BOR_Draft EIS.doc

Responses to Comments from Central Valley Regional Water Quality Control Board

CVRWQCB-1: The information the comment author has provided was included in the DEIS, Chapter 7, "Water Quality," which acknowledges the beneficial uses assigned to Shasta Lake and the Sacramento River. Throughout this chapter, these uses are discussed, impacts to them are

analyzed and where applicable, mitigation measures have been identified.

CVRWQCB-2: Subsequent to release of the DEIS, Reclamation made substantial revisions to the EIS with respect to environmental commitments and mitigation measures. Specifically, in the DEIS, mitigation measure WQ-1 was to prepare and implement a SWPPP. The EIS has been revised to clarify the distinction between environmental commitments (e.g., SWPPP) and enhance the discussion of mitigation measures in a number of resource chapters, including Chapter 7, "Water Quality." The Preliminary Environmental Commitments and Mitigation Plan Appendix has been added to the EIS. This appendix provides a compilation of all the environmental commitments described in Chapter 2, "Alternatives," as well as summarizes all the mitigation measures discussed in chapters 4-25.

CVRWQCB-3: Working closely with its cooperating agencies, Reclamation has substantially revised a number of mitigation measures to ensure compliance with CEQ regulations, and if applicable CEQA guidelines. This effort was conducted over several months' time following receipt of public comments on the DIES using an interagency, interdisciplinary team. In addition, the impacts related to shoreline erosion were reanalyzed using updated field sampling information. As described in the EIS, Chapter 7, "Water Quality," Impacts WQ-1 and Impact WQ-4 and the associated mitigation measures have been revised to reflect Reclamation's commitment to mitigation measure WQ-1 "Develop and Implement a Comprehensive Multi-scale Sediment Reduction and Water Quality Improvement Program Within Watersheds Tributary to the Primary Study Area."

This mitigation measure focuses on proactive activities intended to reduce sediment delivery to receiving waters using a framework approach. At this point in Reclamation's planning process there is substantial uncertainty with respect to the specific location and types of mitigation activities that may be appropriate and or effective. At a minimum, the framework includes four fundamental components intended to meet the primary objectives of reducing sediment impacts and improving water quality. These components are generally consistent with the type of management opportunities identified in the Upper Sacramento River Watershed Assessment and Management Strategy (The River Exchange 2010):

- Stabilize and/or remediate localized point-source locations that are directly affecting waters tributary to Shasta Lake and/or the Upper Sacramento River (e.g., active landslides).

- Reduce road-related sediment and improve hydrologic functions by implementing erosion prevention and sediment control and stormproofing measures at the appropriate scale (5th-field watersheds).

- Use silviculture techniques to manage fuel loads in a manner that reduces the potential for large-scale high intensity wildfires (e.g., Bagley Fire) that often result in wide-spread erosion and resultant water quality impacts.

- Stabilize and/or restore channels using both active (construction) and passive (revegetation) measures that reestablish form and function in a manner that improves water quality. This component is consistent with the objectives for Mitigation Geo-2 (Chapter 4).

CVRWQCB-4: Chapter 4, "Geology, Geomorphology, Minerals, and Soils," and Chapter 7, "Water Quality," of the EIS acknowledge that erosional processes associated with construction and operation of Shasta Dam has resulted in localized elevated levels of turbidity and suspended sediments. The EIS has been revised based on updated analysis of impacts related to shoreline erosion; mitigation for these types of impacts has also been updated. Chapter 7, "Water Quality," of the EIS provides a discussion of the current conditions and potential impacts of reservoir-related erosion on beneficial uses, including both construction and shoreline erosion within Shasta Lake, and to the upper Sacramento River. Mitigation measure WQ-1 has been revised to reduce sediment-related impacts to these water bodies, with an emphasis on actions to reduce turbidity and suspended sediments.

CVRWQCB-5: See response for CVRWQCB-3 and CVRWQCB-4.

CVRWQCB-6: Chapter 2, "Alternatives," Section 2.3.8, "Comprehensive Plan Construction Activities," includes differing vegetation removal protocols based on the area: Clearing Portions of Inundated Reservoir Area, Complete Vegetation Removal, Overstory Removal, and No Treatment. This chapter has also been revised to clarify Reclamation's environmental commitments with respect to maintaining, restoring and enhancing structural measures (e.g., brush structures, boulder complexes) intended to provide near-shore habitat and soil cover/energy dissipaters at high potential erosion areas. Clearing portions of the inundated reservoir area would involve removing trees and other vegetation from around the reservoir shoreline at select areas. Willows, cottonwoods, and buttonbush would not be removed in and along the riparian areas. Consistent with the environmental commitments, manzanita removed in cleared areas would be stockpiled and used for fish habitat/soil cover structures placed in

designated locations. Complete vegetation removal would clear all existing vegetation from the designated treatment area and would generally be applied to locations along and adjacent to developed recreation areas, including boat ramps, day use areas, campgrounds, marinas, and resorts. Exceptions would be made in areas with high shoreline erosion potential, or habitat for special-status species. Overstory removal involves removing all trees from the treatment area that are greater than 10 inches in diameter at breast height, or 15 feet in height, generally in houseboat mooring areas or narrow arms of the reservoir where snags pose the greatest risk to boaters. The remaining understory vegetation would be left in place. Overstory removal is intended to minimize the risk to visitors from snags and water hazards. For the last protocol (No Treatment), designated areas of the inundation zone would be left untreated with no vegetation removed. This prescription would generally be applied to stream inlets, the upper end of major drainages, the shoreline of wider arms of the reservoir, and special habitat areas. Additionally, Impact GEO-5, "Substantial Soil Erosion or Loss of Topsoil Due to Shoreline Processes," and Impact GEO-6, "Substantial Soil Erosion or Loss of Topsoil Due to Upland Processes," in Chapter 4, "Geology, Geomorphology, Minerals, and Soils," addresses these impacts. Measures taken to reduce vegetation removal will result in less soil erosion and more stabilized slopes. Mitigation Measure Geo-2 and Mitigation Measure WQ-1 are intended to minimize soil erosion and reduce the overall delivery of sediment to Shasta Lake and the upper Sacramento River.

CVRWQCB-7: The EIS, Chapter 11, "Fisheries and Aquatic Ecosystems," Impact Aqua-1 provides a comprehensive discussion of the increase in water surface levels by month, by water year type. Under the No-Action Alternative, the lake fills one out of four years. For most water year types, this trend would be similar.

Collectively, Chapter 4, "Geology, Geomorphology, Minerals and Soils," the Geologic Technical Report and the Shoreline Erosion Technical Memorandum included in the EIS provide a detailed discussion of the location, type and timing of shoreline erosion based on comprehensive field investigations and a predictive model. The model predicts that over the first 15 year period, shoreline erosion could yield as much as 767,000 cubic yards per year with an 18.5 foot raise. Within 60 years of the dam raise, the average annual volume is predicted to decrease to 216,000 cubic yards per year.

CVRWQCB-8: Chapter 4, "Geology, Geomorphology, Minerals, and Soils," and Chapter 7, "Water Quality," of the EIS acknowledges that erosional processes associated with construction and operation of Shasta Dam has resulted in localized elevated levels of turbidity and suspended sediments. The EIS has been revised based on updated analysis of

impacts related to shoreline erosion; mitigation for these types of impacts has also been updated. Chapter 7 of the EIS provides a discussion of the current conditions and potential impacts of reservoir-related erosion on beneficial uses, including both construction and shoreline erosion. These impacts are considered to be significant and mitigation measures have been revised and/or enhanced in the EIS.

CVRWQCB-9: The short- and long-term impacts from increases in suspended sediment in water supplies are addressed in Chapter 7, "Water Quality." The following impacts state that any increases in short- or long-term sediment levels would result in less-than-significant impacts and thus additional filtration would not be needed: Impacts WQ-1, "Temporary Construction-Related Sediment Effects on Shasta Lake and Its Tributaries that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Use"; WQ-4, "Long-Term Sediment Effects that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses in Shasta Lake or Its Tributaries"; WQ-7, "Temporary Construction-Related Sediment Effects on the Upper Sacramento River that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses"; and WQ-10, "Long-Term Sediment Effects that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses in the Upper Sacramento River.". The project design measures (e.g., SWPPP) are intended to address any sedimentation impacts from construction or operation activities for all action alternatives.

CVRWQCB-10: Reclamation has gathered information and performed focus studies to document resource conditions and evaluate the potential impacts of the range of alternatives developed through the SLWRI feasibility study. The methods used to evaluate the impacts of the alternatives were based upon Reclamation's standard practices and input from agencies and subject matter experts.

CVRWQCB-11: Reclamation has gathered information and performed focus studies to document resource conditions and evaluate the potential impacts of the range of alternatives developed through the SLWRI feasibility study. The methods used to evaluate the impacts of the alternatives were based upon Reclamation's standard practices and input from agencies and subject matter experts.

CVRWQCB-12: Comment noted. In Chapter 7, "Water Quality," of the EIS, Impact WQ-12, "Long-Term Metals Effects that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses in the Upper Sacramento River," addressed impacts associated with mercury. Specifically, the elevated levels of metals (including mercury are directly related to historic mining operations at two mining districts; one of which is directly adjacent to the current shoreline of

Shasta Lake (Bully Hill). Mitigation Measure WQ-12, "Implement Mitigation Measure WQ-6 (CP1) to Reduce Long-Term Metals Effects on the Upper Sacramento River," will reduce Impact WQ-12 to a less-than-significant level.

CVRWQCB-13: Reclamation has gathered information and performed focus studies to document resource conditions and evaluate the potential impacts of the range of alternatives developed through the SLWRI feasibility study. The methods used to evaluate the impacts of the alternatives were based upon Reclamation's standard practices and input from agencies and subject matter experts.

CVRWQCB-14: Reclamation has gathered information and performed focus studies to document resource conditions and evaluate the potential impacts of the range of alternatives developed through the SLWRI feasibility study. The methods used to evaluate the impacts of the alternatives were based upon Reclamation's standard practices and input from agencies and subject matter experts.

CVRWQCB-15: The short- and long-term impacts from increases in suspended sediment in water supplies are addressed in Chapter 7, "Water Quality." The following impacts state that any increases in short- or long-term sediment levels would result in less-than-significant impacts and thus additional filtration would not be needed: Impacts WQ-1, "Temporary Construction-Related Sediment Effects on Shasta Lake and Its Tributaries that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Use"; WQ-4, "Long-Term Sediment Effects that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses in Shasta Lake or Its Tributaries,"; WQ-7, "Temporary Construction-Related Sediment Effects on the Upper Sacramento River that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses"; and WQ-10, "Long-Term Sediment Effects that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses in the Upper Sacramento River." The project design measures (e.g., SWPPP) are intended to address any sedimentation impacts from construction or operation activities for all action alternatives.

CVRWQCB-16: Reclamation has gathered information and performed focus studies to document resource conditions and evaluate the potential impacts of the range of alternatives developed through the SLWRI feasibility study. The methods used to evaluate the impacts of the alternatives were based upon Reclamation's standard practices and input from agencies and subject matter experts.

CVRWQCB-17: Reclamation has gathered information and performed focus studies to document resource conditions and evaluate the potential

impacts of the range of alternatives developed through the SLWRI feasibility study. The methods used to evaluate the impacts of the alternatives were based upon Reclamation's standard practices and input from agencies and subject matter experts.

CVRWQCB-18: Reclamation has gathered information and performed focus studies to document resource conditions and evaluate the potential impacts of the range of alternatives developed through the SLWRI feasibility study. The methods used to evaluate the impacts of the alternatives were based upon Reclamation's standard practices and input from agencies and subject matter experts.

CVRWQCB-19: The EIS, Chapter 2, "Alternatives," provides a discussion of actions related to relocation and/or enhancement of recreational facilities. All action alternatives provide for modernization of relocated recreation facilities, including, at a minimum, modifications to comply with current standards of health and safety.

CVRWQCB-20: Please refer to Master Comment Response WQ-1, "Remediation of Abandoned Mines in the Shasta Lake Area."

CVRWQCB-21: Please refer to Master Comment Response WQ-1, "Remediation of Abandoned Mines in the Shasta Lake Area."

CVRWQCB-22: Please refer to Master Comment Response WQ-1, "Remediation of Abandoned Mines in the Shasta Lake Area."

CVRWQCB-23: Please refer to Master Comment Response WQ-1, "Remediation of Abandoned Mines in the Shasta Lake Area."

33.8.6 Department of Fish and Wildlife

BISON CONNECT

CDFW Response Letter SLWRI 2013 Public DEIS FINAL with WB Comments

Baker, Dawn@Wildlife <Dawn.Baker@wildlife.ca.gov> Mon, Sep 30, 2013 at 4:13 PM

To: "BOR-MPR-SLWRI@usbr.gov" <BOR-MPR-SLWRI@usbr.gov>, "bperson@usbr.gov" <bperson@usbr.gov>, "dreck@usbr.gov" <dreck@usbr.gov>, "tkisanuki@usbr.gov" <tkisanuki@usbr.gov>, "pzedonis@usbr.gov" <pzedonis@usbr.gov>, "Rocky_montgomery@fws.gov" <Rocky_montgomery@fws.gov>, "Mark_Littlefield@fws.gov" <Mark_Littlefield@fws.gov>, "jim_smith@fws.gov" <jim_smith@fws.gov>, "aolson@fs.fed.us" <aolson@fs.fed.us>, "nrezeau@fs.fed.us" <nrezeau@fs.fed.us>, "jknelson@fs.fed.us" <jknelson@fs.fed.us>, "Rea, Maria@NOAA" <Maria.Rea@noaa.gov>, "Alston, Naseem@NOAA" <Naseem.Alston@noaa.gov>, "Lester, Aric@DWR" <Aric.Lester@water.ca.gov>, "Lyons, Amy@DWR" <Amy.Lyons@water.ca.gov>, "Woodward, Phil@Waterboards" <Phil.Woodward@waterboards.ca.gov>, "skophammer.stephanie@epa.gov" <skophammer.stephanie@epa.gov>, "valentina@epa.gov" <valentina@epa.gov>, "Babcock, Curt@Wildlife" <Curt.Babcock@wildlife.ca.gov>, "Milliron, Curtis@Wildlife" <Curtis.Milliron@wildlife.ca.gov>, "Callas, Richard@Wildlife" <Richard.Callas@wildlife.ca.gov>, "Zezulak, Dave@Wildlife" <Dave.Zezulak@wildlife.ca.gov>, "Baumgartner, Steven@Wildlife" <Steven.Baumgartner@wildlife.ca.gov>, "Berry, Mike@Wildlife" <Mike.Berry@wildlife.ca.gov>, "Lis, Richard@Wildlife" <Richard.Lis@wildlife.ca.gov>, "Figura, Pete@Wildlife" <Pete.Figura@wildlife.ca.gov>, "Grover, Joshua@Wildlife" <Joshua.Grover@wildlife.ca.gov>, "Dibble, Chad@Wildlife" <Chad.Dibble@wildlife.ca.gov>, "jason.roberts@wildlfe.ca.gov" <jason.roberts@wildlfe.ca.gov>, "Cantrell, Scott@Wildlife" <Scott.Cantrell@wildlife.ca.gov>, "Henderson, Brad@Wildlife" <Brad.Henderson@wildlife.ca.gov>, "Harris, Michael R.@Wildlife" <Michael.R.Harris@wildlife.ca.gov>, "Lehr, Stafford@Wildlife" <Stafford.Lehr@wildlife.ca.gov>, "Shaffer, Kevin@Wildlife" <Kevin.Shaffer@wildlife.ca.gov>, "Bratcher, Patricia@Wildlife" <Patricia.Bratcher@wildlife.ca.gov>, "Carlson, Jennifer@Wildlife" <Jennifer.Carlson@wildlife.ca.gov>, "Kovacs, Karen@Wildlife"

<Karen.Kovacs@wildlife.ca.gov>, "Bartlett, Tina@Wildlife"
<Tina.Bartlett@wildlife.ca.gov>, "Vorpagel, Jane@Wildlife"
<Jane.Vorpagel@wildlife.ca.gov>, "Cobb, Donna@Wildlife"
<Donna.Cobb@wildlife.ca.gov>, "Morey, Sandra@Wildlife"
<Sandra.Morey@wildlife.ca.gov>

Please see all 4 attachments above.

4 attachments

CDFW Response Letter SLWRI Public DEIS FINAL with WB Comments 27Sept2013.pdf
2040K

Copy of Attachment 1 SLWRI Public DEIS COMMENT FORM CDFW FINALCBEDITS.xlsx
51K

Copy of Attachment 2 2013 SLWRI DEIS Comment Form CDFW Fisheries FINALCBEDITS.xlsx
19K

Copy of Attachment 3 2013 SLWRI Comments CDFW Water Branch FINAL CB edits.slk
9K

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Region 1 – Northern
601 Locust Street
Redding, CA 96001
www.wildlife.ca.gov

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

September 30, 2013

Ms. Katrina Chow, Project Manager/Civil Engineer
Bureau of Reclamation, Planning Division
2800 Cottage Way, MP-720
Sacramento, CA 95825-1893
Email: BOR-MPR-SLWRI@usbr.gov

Subject: Comments on the Draft Environmental Impact Statement and Proposed Shasta Dam Enlargement Project/Shasta Lake Water Resources Investigation

Dear Ms. Chow:

As trustee agency for California's fish, wildlife, and botanical resources the California Department of Fish and Wildlife (CDFW) appreciates the opportunity to provide comments on the Public Draft Environmental Impact Statement (DEIS) for the Shasta Lake Water Resources Investigation (SLWRI – "Project").

DFW-1 CDFW has been involved with the SLWRI since 2000. During this time we have regularly participated by reviewing draft material and in the many discussions about the project impacts and benefits described in the DEIS. Although we still have many questions and concerns, we believe there is sufficient information for CDFW to comment on the results of the investigation and make some broad recommendations and conclusions regarding the Project's effects to biological resources. Our comments, recommendations, and conclusions on the DEIS for the SLWRI are based on staff's scientific expertise on California's fish and wildlife and associated habitats including anadromous fish species in the Sacramento River watershed. CDFW has completed comment spreadsheets for several of the SLWRI DEIS documents, which are attached. In addition, CDFW has the following comments and concerns:

Investigation Results, Recommendations, and Conclusions

DFW-2 The DEIS demonstrates that all proposed action alternatives would result in significant and unavoidable impacts to fish, wildlife, native plants, and natural communities.

DFW-3 All action alternatives propose very costly enlargements to the cold water pool of Shasta Lake and have highly suspect benefits to anadromous fish survival

DFW-4 while providing limited contributions to additional water supply.

DFW-5 These benefits, as currently described in the DEIS, would be of minimal value and would not significantly contribute to recovery of anadromous species.

DFW-6 We feel a multitude of less expensive and higher value recovery actions that benefit anadromous species should be considered and included as an alternative or alternatives in the DEIS. For example, modifying the existing temperature control device (TCD) and improving flow management can be implemented without raising Shasta Dam.

DFW-7 We are also concerned that if implemented,

DFW-7 CONTD
DFW-8

the cost of the Project will reduce funding allocated to other higher priority restoration projects aimed at benefiting anadromous fish survival in the Sacramento River and tributaries. Based on this, CDFW recommends including an alternative that is clearly beneficial to anadromous fish.

Purpose and Need

DFW-9

The DEIS states that a primary component of the purpose for the Project is promoting increased anadromous fish survival in the upper Sacramento River. It is unclear whether the Project is capable of substantially benefiting anadromous fish, particularly in a manner that provides equal weight to the other primary objective, Water Supply Reliability. CDFW also questions the emphasis on expanding the cold water pool by raising Shasta Dam without first determining whether the Temperature Control Device can be modified to more efficiently use the current cold water pool. The 2000 CALFED Bay-Delta Program Record of Decision (ROD) identifies Shasta Lake as a

DFW-10

potential surface storage project which could increase the pool of cold water available to maintain lower Sacramento River temperatures. Despite the absence of a complete cumulative effects analysis of all project-related actions on anadromous fish, CDFW has concluded that the Project's benefit to anadromous fish would be minimal. Per the

DFW-11

DEIS, benefits to anadromous fish appear to be further limited whenever in conflict with current operational guidelines or water supply reliability.

DFW-12

There are many projects that could increase survival and recovery of anadromous fish. CDFW believes increasing the cold water pool via a dam enlargement is not the top recovery priority. Because the expanded cold water pool is closely linked with the purpose and need/project objective, any alternatives that do not increase reservoir capacity for the expanded cold water pool specifically for the benefit of anadromous fish tend to not meet the stated purpose and need. As a result, lower impact or lower cost alternatives have been eliminated from consideration, while only alternatives proposing raising Shasta Dam are brought forward for detailed analysis in the DEIS.

DFW-13

A range of other higher priority recovery actions are identified in various recovery plans, five-year reviews, and recovery strategies for Central Valley anadromous fish. For example, improving flow management; screening pumps and diversions; enhancement of spawning and rearing habitat; removing fish passage barriers, and floodplain restoration could also achieve increased anadromous fish survival, and would do so in a much more efficient and cost effective manner than raising Shasta Dam. Changing existing Shasta Dam releases in the fall/late fall to eliminate the

DFW-14

dewatering of salmonid redds would increase anadromous fish survival dramatically without the need for a costly construction project. These and other restoration actions

DFW-15

are identified in the DEIS as an attachment, but only a fraction of what was recommended was included in the action alternatives (CP4 and CP5).

DFW-16

Modification of the TCD on Shasta Dam with or without raising Shasta Dam also has the potential to improve anadromous fish survival. At the July 31, 2008, Reclamation meeting, the SALMOD modeler for the SLWRI mentioned that the modeling of the

DFW-16 CONTD

modification of the TCD on Shasta Dam with and without raising Shasta Dam had been completed. The results showed that modifying the TCD without raising Shasta Dam achieved the same benefits for anadromous fish as raising Shasta Dam 18.5 feet and enlarging the cold water pool. During the same meeting, the modeler conducting the CALSIM modeling for the SLWRI stated it was not known whether it was technically feasible to modify the TCD. Reclamation stated that they would provide the modeling results to the USFWS and CDFW and investigate the feasibility of modifying the TCD. This did not happen, despite numerous requests from USFWS and CDFW.

DFW-17

DFW-18

DFW-19

While all the action alternatives appear to include modification of the TCD to account for an increased dam height and to reduce leakage of warm water into the structure, there is no discussion of modifying the TCD without raising Shasta Dam to achieve the same benefits for anadromous fish as raising Shasta Dam. A more thorough discussion of the TCD modification and potential benefits to anadromous fish should have been included in the DEIS. This illustrates the fact that the potential benefits to anadromous fish, due to the concept of raising Shasta Dam, has been overstated in the DEIS.

DFW-20

While the complete extent of the affected area is unknown, unfortunately all dam raise alternatives will result in significant and unavoidable impacts to a large number of terrestrial and riverine resources. This will be caused by a substantially larger reservoir and/or as a result of relocation of infrastructure. This includes the inundation of habitat that would be used by anadromous fish, as per the reintroduction above Shasta Dam and Keswick Dam Priority 1 Recovery Actions (1.8.1.1 and 1.8.2.1) as described in the draft Recovery Plan for winter-run Chinook (*Oncorhynchus tshawytscha*), spring-run Chinook (*O. tshawytscha*), and Central Valley steelhead (*O. mykiss*) (National Marine Fisheries Service 2009a). Reclamation has started the environmental review process on this issue, as per direction found in the Long-term Operations of the Central Valley Project and State Water Project Biological Opinion, Reasonable and Prudent Alternative NF4 (National Marine Fisheries Service 2009b). This apparent conflict should be better disclosed and considered prior to any approval action for this Project.

DFW-21

Approximately four thousand acres of wildlife habitat in the Primary Study Area would be impacted under CP1 and over five thousand would be impacted under CP3, CP4, and CP5. Such an enormous loss of public trust resources (fish, wildlife, native plants, and natural communities) is a substantial loss to the region and to the State. We are not convinced, at this point, that the impact to wildlife and botanical resources can be effectively mitigated. Benefits to fish should not be looked at as a means to offset, mitigate, or account for impacts to wildlife, botanical, and other resource values. CDFW recommends finding lower impact and more effective ways to benefit and recover anadromous species.

NEPA and CEQA Disclosure

DFW-22

While CDFW appreciates the great effort put into preparation of the DEIS, we have found the document to be lacking in some key areas. Due to the complexity of the

DFW-22 CONTD

project CDFW previously requested selection of a preferred action alternative using U.S. Bureau of Reclamation (Reclamation)'s best and most current information. The preferred alternative should have been disclosed for agency and public review during the public review period. The numerous and similar dam raise alternatives analyzed in the current DEIS creates an excessively complex and lengthy document, while the only other alternative was the "No Action" alternative.

DFW-23

The DEIS states repeatedly that it is prepared in compliance with the California Environmental Quality Act (CEQA). However, as it is currently written, the DEIS is not fully in compliance with the CEQA or the National Environmental Policy Act (NEPA). Guidelines 15140 to 15045 call for environmental documents to be written in plain language and reasonable limits on the length of the document. CEQA Guidelines

DFW-24

Section 15126.6 (e)(2) requires identification of "Environmentally Superior" Alternative in the draft Impact Report. Until the Environmentally Superior Alternative is identified, the document is not in compliance with CEQA. Additionally, directives found within

DFW-25

NEPA encourage the identification of the agency's preferred alternative or alternatives, if one or more exists, in the draft statement or public DEIS. Similarly, based on our

DFW-26

past experiences, identification of the preferred alternative is needed in order to consult with the agencies as per Section 7 of the Endangered Species Act, and the California Endangered Species Act.

DFW-27

Both NEPA and CEQA are primarily designed to identify and disclose the significant environmental impacts of a proposed project prior to its consideration and approval. The current structure of DEIS makes the Project impacts very difficult to follow. For example, simple total impact acreages are generally not provided in a straightforward manner, making the task of assessing the Project's impacts as a whole very cumbersome. Section 15126.4 of the CEQA Guidelines states the requirement that

DFW-28

feasible measures shall be described. However, mitigation measures are generally vague, are lacking in measurable standards, and defer any detail to "future documents" (additional comments on mitigation are found in another section of this letter below). CDFW feels that the DEIS falls short of making the project impacts and

DFW-29

mitigation measures understandable for both agency and public review, and to meet CEQA requirements.

Benefit to Anadromous Fish

DFW-30

As discussed above, CDFW is concerned that the proposed project would not substantially increase survival of anadromous fish populations in the upper Sacramento River, primarily upstream from the Red Bluff Diversion Dam (RBDD).

DFW-31

CDFW has previously provided comments in several letters regarding the use of SALMOD to support technical analysis and the representation of data. Specifically, we have questioned how the data is being used to show benefits to anadromous fish from the various alternatives. Overall, the concerns CDFW has outlined in the past remain

DFW-32

valid regarding SALMOD and associated illustrations of benefits to fish. We have additional concerns about what appears to be overdependence on the SALMOD

DFW-32 CONTD

model and the assumptions to drive the model. The analysis within the DEIS on impacts to salmonids in the upper Sacramento River is largely restricted just to the SALMOD model results and does not include any other quantitative or qualitative analysis.

DFW-33

It's unclear in the DEIS if production includes all fish, or wild vs. hatchery fish. The Central Valley Project Improvement Act (CVPIA) Anadromous Fish Restoration Program (AFRP) fish production targets are focused on the natural production of fish from each watershed (USFWS 2001). Due to potential discrepancies between the premises that SALMOD, AFRP, and other restoration programs are based upon, the DEIS fish benefit predictions may be skewed and/or misrepresented.

DFW-34

In addition, the restoration and doubling goals of AFRP identify targets of adult fish, not juvenile fish which is presented in the DEIS. Although there are relationships between juvenile production and adult returns, this is not well defined in the DEIS. Therefore, this approach can lead to a misunderstanding by the public of the true benefits of the Project. With the return rate of adult fish being very low, and the potential benefit of the project being primarily in critically dry years, this further shows the lack of benefit of the Project for anadromous fish.

DFW-35

Use of a cohort replacement rate would be helpful. This is being used within Bay Delta Conservation Plan and more generally within the Central Valley. Using the cohort replacement rate is generally recognized as a more accurate way of looking at salmon population trends over a longer term.

DFW-36

A statement is made in Alternative CP4 that causes CDFW to question the true fisheries benefit of the project. Specifically, the statement reads *"The adaptive management plan may include operational changes to the timing and magnitude of releases from Shasta Dam to benefit anadromous fish, as long as there are no conflicts with current operational guidelines or adverse impacts to water supply reliability."* If the 378,000 acre feet of water is specifically for anadromous fish survival, its use may conflict with current operational guidelines and/or have adverse impacts on water supply reliability, for that specific quantity of increased storage. Therefore, to truly benefit fish the increased reservoir storage space of about 378,000 acre-feet should include only the operational changes to the timing and magnitude of releases from Shasta Dam to benefit anadromous fish and other critical natural resources, regardless of the potential conflicts or impacts to operations and water supply.

DFW-37

The Project could result in direct and indirect effects to various fish species. The Project would result in detrimental impacts to reservoir salmonids. The DEIS identified a significant (negative) effect on Sacramento-San Joaquin Delta smelt (*Hypomesus transpacificus*), Sacramento splittail (*Pogonichthys macrolepidotus*), longfin smelt (*Spirinchus thaleichthys*), and striped bass (*Morone saxatilis*) due to increased reverse flows in Old and Middle Rivers, and also due to increased risk of entrainment or salvage of species at Central Valley Project (CVP) and State Water Project (SWP) facilities caused by changes in CVP and SWP exports. Sacramento-San Joaquin Delta smelt is already in an extremely imperiled condition and is listed as endangered under the California Endangered Species Act, and threatened under the federal Endangered Species Act.

DFW-38 The Project would result in a reduction of larger peak flows, which are typically channel changing flows that often result in habitat improvements. Reducing those flows may have a negative impact on downstream aquatic habitat and species.

DFW-39 Another concern CDFW has is that despite over 10,000 pages of material in this DEIS, details about off-site opportunities to mitigate impacts on biological resources in the primary study area are either not yet available, or lack the necessary level of detail. Of the mitigation measures outlined, some are already being completed through other activities. For example, one of the main components of CP4, augmenting spawning gravel in the upper Sacramento River, is already being performed by Reclamation in compliance with CVPIA. Proposed mitigation should be specific to this project and not from other existing projects.

DFW-40 The DEIS should present a complete picture of the net effect to anadromous fish and other special status species. This would include addressing impacts such as losses of fish at sites of known entrainment (DEIS, Biological Resources Appendix – Fisheries and Aquatic Ecosystem Technical Report, Table 2-170); the potential increase or decrease and the projected increase (as per SALMOD) resulting from (limited) proposed fish enhancement actions; the effects of the pilot reintroduction project; the effects of the preferred alternative in Bay Delta Conservation Plan; and the potential downriver effects as the reservoir is filled. These and other considerations should be made when evaluating the net effects of an action. Only then can CDFW make a complete evaluation of the total effects to anadromous fish survival.

Significant and Unavoidable Impacts, and Mitigation Measures

DFW-41 As previously stated, CEQA requires the identification of mitigation measures but does not require that all significant impacts be mitigated to less-than-significant values for a project to be approved if it can be shown that there is no feasible mitigation or alternative to the significant unavoidable impact. Lead agencies are required to adopt a statement of overriding considerations as to why the project should still be approved, notwithstanding the significant and unavoidable impact, but must make findings demonstrating that there are no feasible mitigation measures or alternatives which would reduce the impact to a less-than-significant level. The mitigation measures provided in the DEIS do not include performance measures or other standards that allow the reader to gauge the adequacy of mitigation. It is not appropriate to defer disclosure of mitigation details to the FEIS.

The current DEIS does identify numerous significant and unavoidable impacts, however the list appears to be incomplete. This includes impacts to State and federally listed species; species whose numbers will be so reduced by a dam raise that it may result in their listing under ESA and/or CESA; and loss of habitat that affect assemblages of special status species, such as neotropical migratory birds. The DEIS does not identify the overriding considerations as to why the Project should proceed despite these impacts.

DFW-42 In addition, due to the lack of clear analysis of effects and/or benefits of the Project for anadromous fish, it has not been quantitatively shown that benefits outweigh the impact and cost of proposed mitigation measures.

DFW-43 Mitigation measures identified to offset some of the impacts are inadequate and/or are not clearly defined. Proposed mitigation measures appear to be relied upon solely to address the sometimes "significant" impacts to special status species, when the degree of the project impact is unclear (e.g. Impact Aqua-15 in the Fisheries chapter of the DEIS). This includes species which are identified on a list of "evaluated species for which direct mortality as a result of implementing CALFED actions is prohibited as a condition of the Multi-Species Conservation Strategy (MSCS)..." (CALFED 2000a, b).

DFW-44 Mitigation measures are proposed in the DEIS when surveys for certain species are not completed within the entire Project footprint, including areas proposed for relocation of roads and/or structures (e.g. Shasta salamander (*Hydromantes shastae*)). Discussions regarding the potential for mitigation, or a clarification of the degree of mitigation needed to offset impacts, have not occurred. Therefore, it is erroneous to assume that mitigation can, in all cases, offset impacts to below a level of significance.

DFW-45 Appropriate mitigation measures must be feasible and have a standard by which they can be measured (i.e., performance criteria). For example, preconstruction surveys are provided as part of a "potential" mitigation measure. Monitoring pre- and post-project effects is required and is typically not accepted as a mitigation measure. Effects of the proposed action, as a result of surveys, needs to be clearly described in order to establish any potential mitigation that would help offset significance of impact.

Summary of additional issues:

DFW-46 **The Potential for Species Listing and Threat of Extirpation**
There are several species that appear to be significantly impacted, should the dam raise occur. For example, raising Shasta Lake would inundate the limited habitat of Shasta snow-wreath (*Neviusia cliftonii*) and Shasta salamander (*Hydromantes shastae*).

DFW-47 **Listed Species and Habitat Analyses, and Mitigation**
Title 50 Code of Federal Regulations (CFR) Section 402.02 states the effects of the action refers to the direct and indirect effects of an action on the species or critical habitat, **together** with the effects of other activities that are interrelated or interdependent with that action. This information is then added to the environmental baseline. The DEIS contains contradictions and utilizes improper information in evaluating the potential impact on a large number of special status species, including fish, wildlife, and plants, as well as water-quality, geological, and geomorphological attributes. This includes several special status species, such as bank swallow (*Riparia riparia),* bald eagle (*Haliaeetus leucocephalus),* and northern spotted owl (*Strix occidentalis caurina).*

DFW-48 **California Wild and Scenic Act, the McCloud River**
Raising the water level behind Shasta Dam will convert part of the McCloud River into reservoir habitat, changing the free-flowing condition of the McCloud River. As per the California Wild and Scenic Rivers Act (Act), the determination of adverse effect as a result of this change is made by the Secretary of the State of California's Resource

DFW-48 CONTD

Agency, currently known as the Natural Resource Agency (Public Resource Code, Section 5093.60). Reclamation should request an effects determination from the California Natural Resources Agency.

Clarification on the Dedicated Pool, Alternative CP4

DFW-49

The 2008 Planning Aid Memorandum (PAM) (U.S. Fish and Wildlife Service 2008) identified an earlier recommendation from U.S. Fish and Wildlife Service, CDFW, and National Marine Fisheries Service (NMFS) for "dedicated environmental water" to be included in a SLWRI alternative, which was in the amount of 378,000-acre feet in Alternative CP4. This water was to be adaptively managed and used at the discretion of the federal and State fisheries resource agencies, not the Sacramento Temperature Task Group.

Water Quality Impacts

DFW-50

The level of effect on water quality as a result of a dam raise continues to be insufficiently analyzed. This includes the potential impacts created by inundation of abandoned mines, increased sedimentation along the new lakeshore due to erosion, mercury methylation, and the cumulative effects of mining local substrate to provide dam construction materials.

Impacts to Tributaries below Keswick Dam

DFW-51

Channel incision and bank erosion, in both the main channel and tributaries, commonly occurs below dams. Problematic channel incision has largely been documented in Clear Creek, Cow Creek, Bear Creek, and Cottonwood Creek. Additional analysis is needed to assess the effects of proposed operations and flows on these and other critical tributaries below Keswick Dam. This impact warrants further investigation including consideration of mitigation measures such as gravel augmentation, bank stabilization, and riparian restoration to reduce potential erosion.

Concluding Remarks

DFW-52

Based upon CDFW's review of the DEIS, we recommend additional analysis to fully identify impacts, inclusion of avoidance or mitigation measures, and adding to or enhancing the alternatives to further benefit one of the Primary Objectives: Anadromous Fish Survival. Currently, CDFW believes that the Project's impacts to biological resources far outweigh any benefits to anadromous species survival that are proposed to occur in the current DEIS under various action alternatives.

If you have further questions regarding our comments, please contact Staff Environmental Scientist Patricia Bratcher by at Patricia.Bratcher@wildlife.ca.gov, or by phone at (530) 225-3845. Thank you for your time and consideration.

Sincerely,

NEIL MANJI, Regional Manager
California Department of Fish and Wildlife
Region 1 – Northern

Attachments:

ec: see Page 10

ec: Mr. Ron Ganzfried, Bureau of Reclamation, rganzfried@usbr.gov
Messrs. Brian Person, Don Reck, Tom Kisanuki, and Paul Zedonis
Bureau of Reclamation, Shasta Reservoir Office
bperson@usbr.gov, dreck@usbr.gov, tkisanuki@usbr.gov, pzedonis@usbr.gov

Messrs. Rocky Montgomery, Mark Littlefield, and James Smith
U.S. Fish and Wildlife Service
rocky_montgomery@fws.gov, mark_littlefield@fws.gov, jim_smith@fws.gov

Messrs. Alan Olson and Nathan Rezeau, and Ms. Julie Nelson
U.S. Forest Service
aolson@fs.fed.us, nrezeau@fs.fed.us, jknelson@fs.fed.us

Mss. Maria Rea and Naseem Alston
National Marine Fisheries Service
Maria.Rea@noaa.gov, Naseem.Alston@noaa.gov

Mr. Aric Lester and Ms. Amy Lyons
California Department of Water Resources
Aric.Lester@water.ca.gov, Amy.Lyons@water.ca.gov

Mr. Phil Woodward
Central Valley Regional Water Quality Control Board
pwoodward@waterboards.ca.gov

Mss. Stephanie Skophammer and Valentina Cabrera-Stagno
Environmental Protection Agency
Skophammer.Stephanie@epa.gov, Cabrera-Stagno, Valentina@epa.gov

Messrs. Curt Babcock, Curtis Milliron, Richard Callas, Dave Zezulak, Steven Baumgartner, Mike Berry, Richard Lis, Pete Figura, Joshua Grover, Chad Dibble, Jason Roberts, Scott Cantrell, Brad Henderson, Michael R. Harris, Stafford Lehr, and Kevin Shaffer
Mss. Patricia Bratcher, Jennifer Carlson, Karen Kovacs, Tina Bartlett, Jane Vorpagel, Donna Cobb, and Sandra Morey
California Department of Fish and Wildlife
curt.babcock@wildlife.ca.gov, curtis.milliron@wildlife.ca.gov, richard.callas@wildlife.ca.gov, dave.zezulak@wildlife.ca.gov, steven.baumgartner@wildlife.ca.gov, mike.berry@wildlife.ca.gov, richard.lis@wildlife.ca.gov, pete.figura@wildlife.ca.gov, joshua.grover@wildlife.ca.gov, chad.dibble@wildlife.ca.gov, jason.roberts@wildlife.ca.gov, scott.cantrell@wildlife.ca.gov, brad.henderson@wildlife.ca.gov, michael.r.harris@wildlife.ca.gov, Stafford.Lehr@wildlife.ca.gov, kevin.shaffer@wildlife.ca.gov, patricia.bratcher@wildlife.ca.gov, jennifer.carlson@wildlife.ca.gov,

karen.kovacs@wildlife.ca.gov, tina.bartlett@wildlife.ca.gov, jane.vorpagel@wildlife.ca.gov, donna.cobb@wildlife.ca.gov, sandra.morey@wildlife.ca.gov

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Attachment 1	SLWRI Draft Environmental Impact Statement Comment Form - CA Dept. of Fish and Wildlife Version June 2013							
Reviewer Name:	Brad Henderson, Andrew Jensen, Patricia Bratcher, Steve Baumgartner							
Reviewer Email:	Brad.Henderson@wildlife.ca.gov Andrew.Jensen@wildlife.ca.gov Patricia.Bratcher@wildlife.ca.gov							
Reviewer Agency:	CA Dept. of Fish and Wildlife							
Reviewer Mailing	Address: 601 Locust St., Redding, CA 96001						Comments on SLWRI Public Draft Environmental Impact Statement	
Date:	Sept. 2013							
ITEM	REVIEWER	DOCUMENT TITLE	CHAPTER TITLE	CHAPTER NUMBER	PAGE NUMBER	LINE NUMBER	TEXT	COMMENT
1	DFW-53 CDFW	SLWRI DEIS	Summary	N/A	ES-1	13	N/A	Please identify the Proposed Action here. The proposed action is still not clearly identified; however, it's purpose and objecitves are stated. It is possible that, according to the first page of the Executive summary, that the proposed action is conducting an investigation, as opposed to enlarging a dam (ES-1, line 2)...? The selection of a preferred alternative would not be the same, depending on which of these two proposed actions is being evaluated.
2	DFW-54 CDFW	SLWRI DEIS	Summary	N/A	ES-3	7	...increasing demands for water supplies and growing concerns over declines in ecosystem resources in the Central Valley of California...	The specific declines in ecosystem resources that prompted this study, and how such declines relate to Shasta Dam, should be thoroughly discussed in the EIS.
3	DFW-55 CDFW	SLWRI DEIS	Summary	N/A	ES-4	37	The purpose of an EIS is not to recommend approval or rejection of a project,	Due to the complexity of the project and the Department's limited resources for thorough review of all impacts for all project alternatives, the Department requests selection of a preferred action alternative using Reclamation's best and most current information. The preferred alternative should be disclosed for agency and public review during the EI/EIRS public review period. The numerous alternatives analyzed in the current EIS creates an excessively complex and lengthy document. CEQA Guidelines 15140 to 15045 call for environmental documents to be written in plain language and reasonable limits on the length of the document. Any actions taken to facilitate meaningful review by reducing the complexity of the review process would be appreciated.
4	DFW-56 CDFW	SLWRI DEIS	Summary	N/A	ES-6	3	Increase the survival of anadromous fish populations in the Sacramento River, primarily upstream from the RBPP	The EIS has not yet demonstrated that there is an issue with survival that is in any way related to the current configuration or operation of Shasta Dam. Previous EIS discussion of a temperature problem in the Sacramento River have only addressed Chinook. Please discuss how other anadromous species have been negatively affected by inappropriate temperatures under the current configuration and operation of Shasta Dam.

		Page 2		SLWRI DEIS Review by CDFW					
DFW-57	5	Henderson	SLWRI DEIS	Summary	N/A	ES-7	1	Unsuitable water temperatures in the upper Sacramento River...critical factor...can be detrimental.	The agencies agree that temperature in the river is a major reason for the decline of Chinook, but there has not been a complete discussion that the best way to improve temperatures in the river is raising the dam.
DFW-58	6	CDFW	SLWRI DEIS	Summary	N/A	ES-7	16	Despite these steps, additional actions are needed to address anadromous fish survival in the upper Sacramento River.	Identify the additional actions needed. Please reference federal or state wildlife agency recovery plans, recovery strategies, biological opinions, conservation strategies, or species management documents
DFW-59	7	CDFW	SLWRI DEIS	Summary	N/A	ES-8	13	a significant need remains to conserve and restore ecosystem resources along the Sacramento River.	Please identify the specific needs to conserve and restore habitat and how the current configuration and/or management of Shasta Dam precludes conservation and restoration. Please identify any issues with survival of Chinook in the River that can be attributed to the current configuration or operation of Shasta Dam.
DFW-60	8	CDFW	SLWRI DEIS	Summary	N/A	ES-14	9	...plan to raise Shasta Dam to help increase anadromous fish survival ...	It has not been determined that raising the dam is the only way that anadromous fish survival can be helped. The environmental analysis associated with the Trinity River evaluated impacts, both beneficial and negative, to listed anadromous fish.
DFW-61	9	CDFW	SLWRI DEIS	Summary	N/A	ES-16	8	Enlarging Shasta Reservoir would increase the depth	The EIS needs to provide the acreage of the larger Shasta Reservoir for each alternative.
DFW-62	10	CDFW	SLWRI DEIS	Summary	N/A	ES-17	21	Accordingly, storage in the overall full pool would increase from 4.55 MAF to 5.0 MAF	The EIS needs to provide the acreage of the larger Shasta Reservoir for each alternative.
DFW-63	11	CDFW	SLWRI DEIS	Summary	N/A	ES-18	29	Accordingly, storage in the overall full pool would be increased from 4.55 MAF to 5.19 MAF.	The EIS needs to provide the acreage of the larger Shasta Reservoir for each alternative.
DFW-64	12	CDFW	SLWRI DEIS	Summary	N/A	ES-19	18	CP4 focuses on increasing anadromous fish survival...	The EIS needs to provide the acreage of the larger Shasta Reservoir for each alternative.
DFW-65	13	CDFW	SLWRI DEIS	Summary	N/A	ES-20	28	SECTION S.6.6.	The EIS needs to provide the acreage of the larger Shasta Reservoir for each alternative.
DFW-66	14	CDFW	SLWRI DEIS	Summary	N/A	ES-22	12	Clearing vegetation from portions of the inundated reservoir area	The EIS needs to provide the acreage of the inundated reservoir area for each alternative.

		Page 3		SLWRI DEIS Review by CDFW					
DFW-67	15	CDFW	SLWRI DEIS	Summary	N/A	ES-22	26	...increase the ability of Reclamation to regulate water temperatures...	Please provide some comparison factor, percentage, degrees of temperature, etc. that would demonstrate the level of increased ability to regulate temperature in the Sacramento River over current levels.
DFW-68	16	CDFW	SLWRI DEIS	Summary	N/A	ES-29	34	As shown in Table S-3, after consideration of actions, operations, and features to avoid, mitigate, and/or compensate for adverse effects...	List of significant and unavoidable direct and indirect impacts lacks impact to water quality through increased erosion/sediment discharges, and pollutant introductions due to inundation of existing mine(s). There is also no mention of significant impacts on fisheries, adfluvial salmonids, anadromous or Delta species.
DFW-69	17	CDFW	SLWRI DEIS	Summary	N/A	ES-34	33	A discussion of mitigation for loss of habitat through preservation and enhancement in mitigation areas will be included in future documents.	The DEIS should identify more specific mitigation measures that will be implemented to mitigation unavoidable impacts, rather than state the discussions will be included in future documents.
DFW-70	18	CDFW	SLWRI DEIS	Summary	N/A	ES-35	17	"Environmentally Superior Alternative" consistent with CEQA	CEQA Guidelines Section 15126.6 (e) (2) requires identification of the environmentally superior alternative in the draft EIR. Please identify an environmentally superior alternative among the other alternatives. This will ensure that the EIS remains consistent with the provisions of CEQA.
DFW-71	19	CDFW	SLWRI DEIS	Summary	N/A	ES-37	Table S-3	Mitigation Measure Aqua-7: Implement Mitigation Measure Geo-2: Replace Lost Ecological Functions of Aquatic Habitats by Restoring Existing Degraded Aquatic Habitats in the Vicinity of the Impact	Adding nearshore fish habitat and spawning gravel is not going to compensate for the impact to intermittent and perennial tributaries, and/or adfluvial salmonids within the lake.
DFW-72	20	CDFW	SLWRI DEIS	Summary	N/A	ES-66	Table S-3	Table S-3: Impact Bot-1: Loss of Federally or State Listed Plant Species	Rare, threatened, and endangered species to be addressed shall include all those which meet the California Environmental Quality Act (CEQA) definition (see CEQA Guidelines, § 15380). A species not included in any formal listing identified in subdivision shall nevertheless be considered to be endangered, rare or threatened, if the species can be shown to meet the following criteria: (1) Although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or (2) The species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered "threatened".

Page 4			SLWRI DEIS Review by CDFW					
DFW-73								
21	CDFW	SLWRI DEIS	Summary	N/A	ES-68	Table S-3	Table S-3l; Loss of general vegetation habitats because of inundation, vegetation removal, or construction activities	Please quantify the impacts.
DFW-74								
22	CDFW	SLWRI DEIS	Summary	N/A	ES-77	Table S-3	Table S-3, Impact Wild-2 and Impact Wild-3: Loss of approximately habitat	Please quantify the impact
DFW-75								
23	CDFW	SLWRI DEIS	Introduction	1	Page 1-8	Line 28	The recovery plan emphasizes that, under current conditions, even two consecutive years of drought …	As per the OCAP BO, Reasonable and Prudent Alternatives were developed to address the impacts of the CVP and SWP. It did not include raising the dam as an RPA or an item to explore. As written, the document implies that this project is needed to address flow and temperature concerns. The recovery plan references the OCAP BO in the context of flow management and addressing low water years; in addition, the 2009 NMFS recovery plan actions include (pp 99 and 100)) "Continue(ing) to implement a river flow management plan that balances carryover storage needs with instream flow needs for winter-run Chinook salmon based on runoff and storage conditions, including flow fluctuation and ramping criteria (USFWS 2001). This has not been changed in the public draft EIS.
DFW-76								
24	CDFW	SLWRI DEIS	Introduction	1	Page 1-9	Line 26	…the overall trend for the past 10 years has shown increases…	CDFW does not agree with this statement. While populations showed increases in the mid 2000's to as large as 15 to 17 thousand fish, the populations since then have not rebounded as hoped and remain less than 5 thousand for the past six years. Go to http://www.fws.gov/stockton/afrp/ to review Grandtab and ChinookProd tables, which currently contains data through the 2011 spawning season. We made a a comment on this in the SLWRI Draft Feasibility Report comment letter. Please address that comment.
DFW-77								
25	CDFW	SLWRI DEIS	Introduction	1	Page 11-13	Line 9	Climate change could also result in reduced end-of-September carryover storage volumes…	Consider evaluating climate change results…indications are that Mt. Shasta will get cooler and/or experience more rain. Need more input on this in terms of climate change analysis.

Page 5			SLWRI DEIS Review by CDFW					
DFW-78								
26	CDFW	SLWRI DEIS	Introduction	1	Page 1-15	Line 6	Modification of seasonal flow patterns by dams and water diversions also has inhibited …	Please note this sentence. Will the SLWRI address this impact by a change in flow patterns which will enhance riparian habitat succession and/or increase riparian habitat? This paragraph/sentnce implies that the SLWRI could provide a solution to this problem in a similar way that it could address increasing water demand stated earlier in the document. However, there is little mention of doing this in the alternatives. It appear to an element of CP4 by using the dedicated pool, however, it is not clearly described how this would be implemented. Riparian succession, floodplain inundation, etc., directly and indirectly improves anadromous fish survival. This applies to the next paragraph e on fish and wildlife species/riparian habitat.
DFW-79								
27	CDFW	SLWRI DEIS	Introduction	1	Page 1-27	No line	CDFW Permits	See our Comment letter on the Draft Feasibility Report, Feb. 2013, regarding compliance with CDFW Codes and Permit requirements.
DFW-80								
28	CDFW	SLWRI DEIS	Introduction	1	Page 1-27	No line	CA Resource Agency Role	The correct name is the California NATURAL Resources Agency. Compliance with the state Wildlife and Scenic Rivers Act also applies here.
DFW-81								
29	CDFW	SLWRI DEIS	Introduction	1	1-31	25	The *STNF LRMP* direction requires that know sites be protected from disturbance during management.	The Survey and Manage rules are stringent—not all categories of SM species require predisturbance surveys, but most all require that known sites be managed for persistence of the SM species, not just managed for disturbance impacts. The management recommendations are here-- http://www.blm.gov/or/plans/surveyandmanage/recommendations/
DFW-82								
30	CDFW	SLWRI DEIS	Alternatives	2	2-34	24	…an average annual increase in the Chinook salmon population of about 207,400…juvenile fish.	This alternative contains, in its title, "Anadromous Fish Survival", yet it has less benefit than CP2 (379,000 juvniles) as per the SALMOD analysis. Alt. 2 is a smaller dam raise. Consider removing those words from the title of this alternative.
DFW-83								
31	CDFW	SLWRI DEIS	Alternatives	2	2-50	40	Restoration measures for six potential sites…	This is new information in the context of actual locations and has not been discussed, relatively speaking, with CDFW. Additional elaboration on how these projects may actually benefit fish is needed, in addition to more coordination with the fish agencies.
DFW-84								
32	CDFW	SLWRI DEIS	Alternatives	2	2-56	15	Sacramento River Temperature Task Group	See our comment letter on the SLWRI Feasibility Report. The SRTTG is not necessarily the right forum for this discussion/coordination, and they have not been given this responsibility within the NMFS OCAP BO. The use of the SRTTG was also never discussed with the fish agencies involved with the dedicated pool (see 2008 PAM letter).

Page 6			SLWRI DEIS Review by CDFW					
DFW-85								
33	CDFW	SLWRI DEIS	Alternatives	2	2-58	33	Restoring riparian, floodplain, and side channel habitat in the upper Sacramento River	These restoration projects are not described in the CP5 section. Are they the same as the ecosystem restoration actions on the Sacramento River that are described in CP4? Please elaborate.
DFW-86								
34	CDFW	SLWRI DEIS	Alternatives	2	2-67	6	Exceptions would be made in areas with high shoreline erosion potential, or habitat for special-status species	The impact on special status species could be extensive. For example, removal of trees and/or complete vegetation removal could affect bald eagles significantly. Leaving trees for retention but removing others, for example, could make the remaining trees more susceptible to high wind effects. Removing vegetation could also make areas susceptible to NIS plant invasion and expose prey species to predation. It would also remove potential cover habitat for resresvoir fisheries. CDFW expects that this will be completed evaluated in the Environmental Consequences section.
DFW-87								
35	CDFW	SLWRI DEIS	Alternatives	2	2-101 2-102	35 Line 2 to 10	...the preferred alternative for implementation will be identified in the Final EIS.	California Environmental Quality Act (CEQA) Guidelines Section 15126.6 (e)(2) requires identification of the "Environmentally Superior" Alternative in the draft Environmental Impact Report. Until the Environmentally Superior Alternative is identified in the draft environmental document, the document is not in compliance with CEQA. See also our comment letter on the Administrative draft SLWRI EIS, April 2013.
DFW-88								
36	CDFW	SLWRI DEIS	Considerations	3	3-6	5	These criteria are based on the checklist presented in Appendix G	Appendix G states: "All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts." The draft EIS does not accomplish this to a required level of detail and/or analysis. As defined in Section 15355, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts.
DFW-89								
37	CDFW	SLWRI DEIS	Considerations	3	3-24	1	...degradation caused by sedimentation and urbanization, and developing a watershed management and analysis plan.	Degradation was primarily caused by mining and flow regulation on Clear Creek. The other programs under CVPIA also play a large role in Sacramento River flow management and restoration, particularly 3406(b)(2) and 3406 (b)(13), the Red Bluff diversion dam project/new pump facility (still being implemented), refuge water supply, etc.
DFW-90								
38	CDFW	SLWRI DEIS	Considerations	3	3-26	20	Recovery Plans	Bank Swallow conservation Plan is also missing, as is the NMFS 2009 Draft Recovery plan for anadromous salmonids. CA RL Frog also has a recovery plan; that is missing.
DFW-91								
39	CDFW	SLWRI DEIS	Considerations	3	3-29	35	The Invasive Non-Native Plant (Weed) Management Plan for the Mouth of Cottonwood Creek Wildlife Area	This is not an active project. However, there is an AFRP-funded project for non-native weed management control on Cottonwood Creek, associated currently with SF Cottonwood Creek, which is several miles upstream of the Wildlife Area.

Page 7			SLWRI DEIS Review by CDFW					
DFW-92								
40	CDFW	SLWRI DEIS	Considerations	3	3-30	6	Deer Creek Flow Enhancement Program	This project has been changed significantly, including the dropping of the groundwater well pumping element. Negotiations are underway for a possible water lease with Deer Creek Irrigation District. "The Deer Creek Flow Enhancement Program is a component of the conceptual framework for the Deer Creek Flow Enhancement Program.--this makes no sense--the Program is a component of the same program? Please edit.
DFW-93								
41	CDFW	SLWRI DEIS	Considerations	3	3-31	2	Projects	In relation to the DCFEP, DWR is currently developing 50% designs for fish passage solutions at the DCID Dam site, and AFRP is funding of the 100% engineered designs of the preferred alternative. There are several other AFRP projects, such as redd dewatering monitoring, acoustic tagging of juvenile fish, and implementation projects on the other tributaries (Mill Creek, Antelope Creek, Cow Creek) that are missing in this section. Some of them have a direct relationship with conditions on mainstem Sacramento River.
DFW-94								
42	CDFW	SLWRI DEIS	Considerations	3	3-42	17	Natomas Levee Improvement Program Landside Improvement Project	Natomas Irrigation District recently installed a new, very expensive fish screen. That should be listed in this document.
DFW-95								
43	CDFW	SLWRI DEIS	Geology	4	4-68	25	Geomorphic changes at these major tributaries have not been linked with Shasta Dam operations.	This effect has been observed at the confluence with Cow Creek and the Sacramento River. On Cow Creek, historical gravel removal occurred several miles upstream and can similarly not be considered the reason behind the downcutting seen at the confluence with the Sacramento River. The linkage, as defined in this paragraph, has not been formally made because no one has been assessing this potential effect. Observation from professionals who have been working in this area for decades (from CDFW and the Regional Water Quality Control Board) are the ones who are noticing these effects. The effect of downcutting and channel adjustment on tributaries following construction of a dam on a river is well documented (see attached list of references). The conclusion drawn within this document is inaccurate. See comments 6-8 below for evidence and research on this subject.

Page 8			SLWRI DEIS Review by CDFW					
DFW-96								
44	CDFW	SLWRI DEIS	Geology	4	4-68	27	...impact would be less than significant.	(As described in Brandt 2000) The primary effect of dams on system stability is to reduce peak discharges and sediment supply to the downstream channel. Upstream effects of a dam and associated reservoir include delta formation, gradual raising of stream levels in the backwater zone, and a more pronounced meandering (USACE, EM 1110-2-1418, 1994). Downstream effects result from flow control through the dam and retention of sediment. A reduction in peak discharge often reduces bank instability downstream by inducing deposition at the channel margin in the form of berms. The channel adapts to a lower channel forming discharge by shrinking. Reducing peak discharge and lowering the flowlines in the downstream channel may also induce tributary instability by lowering their effective base level.
DFW-97								
							Above comment cont'd	Channel degradation in the form of a head cut advances up the tributaries and ultimately increases the sediment supply to the main river. However, reducing the sediment supply to the stream through reservoir retention also often induces channel degradation downstream, which can actually lead to mass instability of the banks by increasing bank heights. This may trigger a reversal of main channel response and lead to eventual aggradation due to increased sediment supply from tributaries (Biedenharn, 1983). System response to flow control and sediment retention aspects of dams are very complex and cannot be easily predicted or generalized (Brandt 2000).
DFW-98								
45	CDFW	SLWRI DEIS	Geology	4	4-68	27	...impact would be less than significant.	Impacts from dams: The major effect of main stream changes on the tributaries will often be a change in their base levels. An increase of water flow or aggradation, and by that base level raising, will only affect the tributaries up to a level where the backwater curve intersects the original profile _Leopold et al., 1964. For most occasions, however, a lowering of base level due to decreased water flow or degradation could be expected. Several reasons exist for this (Germanoski and Ritter, 1988): 1) Channel bed degradation will lower the flow level of the trunk river at any given discharge; 2) channel widening by bank erosion of the trunk river will produce the same effect;
DFW-99								
							Above comment cont'd	and 3) if flow regulation is significant, the peak discharge of the trunk river will be out of phase with the peak discharge of the unregulated tributary streams. The third effect has, for example, been noted in Canada where tributaries adjust by degrading their beds in the vicinity of the junction to the main channel (Kellerhals and Gill, 1973).

Page 9			SLWRI DEIS Review by CDFW					
DFW-100								
46	CDFW	SLWRI DEIS	Geology	4	4-68	27	...impact would be less than significant.	Army Corps of Engineers, http://www.spn.usace.army.mil/russian/overview031600.html) Coyote Dam has also altered the movement of sediment in the Russian River. According to the Sonoma County Water Agency estimates, an average of 210,000 tons (approximately 98 acre feet) of sediment per year is trapped in Lake Mendocino from the 105 square miles of watershed upstream (Florsheim and Goodwin 1993). Consequently, the Russian River below the dam is starved of this material. Compensating for this lack of sediment, flows below the dam scour gravel from the bed and erode banks of the channel contributing to incision and bank failure. While flood peaks are diminished downstream of the dam, the duration of moderate flood flows from controlled releases has increased, promoting bank erosion along the river for miles downstream of the dam. Oral histories, observations, and anecdotal evidence all suggest that river downcutting and erosion has significantly increased since the construction of Coyote Dam in 1958. There have been reports of channel incision from 8 to 14 feet since the early 1960s...
DFW-101								
							Comment #8 cont'd	...Likewise, the tributaries in the upper reach of the Russian River have exhibited significant head cutting and incision in response to the erosion of the main channel. Rapid incision through the loose alluvium of the floodplains and headcutting in all the associated tributaries have resulted in significant economic costs in lost farmland, bridge replacements, grade control structures, bank protections, and modifications to pump intakes.
DFW-102								
47	CDFW	SLWRI DEIS	Fisheries	11	11-13	Table 11-1	Redband Trout	McCloud River Redband Trout. This is a CA Species of Special Concern.
DFW-103								
48	CDFW	SLWRI DEIS	Fisheries	11	11-15	Table 11-1	River Lamprey	River lamprey (*Lampetra ayresii)* may also occur. They are a Species of Special Concern.
DFW-104								
49	CDFW	SLWRI DEIS	Fisheries	11	11-28	8	NMFS has jurisdiction over anadromous and marine species...	NMFS is also responsible for designating Critical Habitat and preparing Recovery Plans.
DFW-105								
50	CDFW	SLWRI DEIS	Fisheries	11	11-31	17	CALFED Ecosystem Restoration Program Plan	This program is no longer called CALFED ERP, just ERP.
DFW-106								
51	CDFW	SLWRI DEIS	Fisheries	11	11-33	7	Based on Reclamation's Long-Term Central Valley Project Operations ..., the BO	Cite reference: USFWS 2008 BO and NMFS 2009 BO.
DFW-107								
52	CDFW	SLWRI DEIS	Fisheries	11	11-37	42	If any changes are made...a supplemental report to the SWRCB	The WOMT should also be included here, as per the 2009 NMFS OCAP BO RPA's.

	Page 10		SLWRI DEIS Review by CDFW					
DFW-108								
53	CDFW	SLWRI DEIS	Fisheries	11	11-40	20	...including the elimination of the Survey and Manage ...as the result of a court order	Consider expanding this narrative: The Survey and Manage rules are stringent—not all categories of SM species require predisturbance surveys, but most all require that known sites be managed for persistence of the SM species currently. The management recommendations are here-- http://www.blm.gov/or/plans/surveyandmanage/recommendations/
DFW-109								
54	CDFW	SLWRI DEIS	Fisheries	11	11-41	6	Consultation with USFWS will continue regarding habitat management for threatened and endangered species.	There is land managed by the Mendocino NF near Red Bluff, along the Sacramento River, and BLM also manages lands along the River. The management plans of these agencies/forests should also be included.
DFW-110								
55	CDFW	SLWRI DEIS	Fisheries	11	11-41	8	State Regulations	Here are other codes requiring compliance: Code 1505, regarding Spawning Areas management and protection, from Keswick to Squaw Hill Bridge near Vina, CA; Codes 5900 - 5904, which is related to development of water resources projects; Codes 5930 - 5948, which has to do with dams and impacts to fish resources; Codes 7261 - 7261, regarding trout management; and Code 7370, regarding sturgeon management, and FGC 5650(a)(1).
DFW-111								
56	CDFW	SLWRI DEIS	Fisheries	11	11-44	32	Yolo County's general plan	Cite references of and include a narrative on all of the (affected) county plans.
DFW-112								
57	CDFW	SLWRI DEIS	Fisheries	11	11-45	31	Cantara Trustee Council	The Cantara Trustee Council disbanded in 2007. There are currently only a couple of incomplete/ongoing grants.
DFW-113								
58	CDFW	SLWRI DEIS	Fisheries	11	11-47	13	Sacramento River Conservation Area Program	The correct name is the Sacramento River Conservation Area Forum.
DFW-114								
59	CDFW	SLWRI DEIS	Fisheries	11	11-48	N/A	Other groups	There is also an active entity called the Sacramento River Watershed Program, which originally came into being as a result of water quality issues on the Sacramento River at the north end of the city.
DFW-115								
60	CDFW	SLWRI DEIS	Fisheries	11	11-49	2	Model selection and use for each of the variables were as follows:	Please see our comments on the concerns regarding SALMOD, using monthly flow data, and other issues in the 2006 comment letter from CDFW on SALMOD; our 2008 SLWRI DEIS comment letter; our 2011 SLWRI DEIS comment letter; and our 2012 Feasibility Report comment letter.
DFW-116								
61	CDFW	SLWRI DEIS	Fisheries	11	11-50	30	...as outlined in SWRCB Water Right Order 90-5 and multiple BOs.	This paragraph is confusing in that it does not make any particular point and/or make a conclusion of isolated inaccuracies/real time issues identified in the previous paragraph.

	Page 11		SLWRI DEIS Review by CDFW					
DFW-117								
62	CDFW	SLWRI DEIS	Fisheries	11	11-53	23	However, model outputs should be used as tools for interpretation of anticipated impacts rather than actual projections	Daily information is also critical to the interpretation and analysis of effects. Just one day of fluctuating flow could devastate progeny (developing eggs). Secondly, despite what is stated in this sentence, the models seem to be heavily relied upon when making determinations of benefit of the project and the assessment of impacts.
DFW-118								
63	CDFW	SLWRI DEIS	Fisheries	11	11-56	1	22,178 Spring-run Chinook	CDFW has already commented on the degree to which this is an unrealistic number, and reasons for why the AFRP goal looks the way it is. This document should clearly reflect that information in order to not lead the public astray. Please describe the lack of usefulness (in this case, as it relates to the doubling number) of this figure.
DFW-119								
64	CDFW	SLWRI DEIS	Fisheries	11	11-60	23	Riverine fish, including steelhead and green sturgeon, were evaluated based on differences between monthly mean flows	See earlier comments in the 2008 CDFW comment letter, the 2011 comment letter and the 2013 FR comment letter on the SLWRI for the risk involved with using monthly flow and water termperature data.
DFW-120								
65	CDFW	SLWRI DEIS	Fisheries	11	11-71	29	The following significance criteria were developed...	Critical Habitat, as designated, Primary Constituent Elements, and Essential Habitat also needs to be addressed. Significance criteria as per ESA and CESA also needs to be considered and added into the criteria; on the same page, Appendix G of the CEQA Guidelines is also mentioned; see earlier comment on Appendix G.
DFW-121								
66	CDFW	SLWRI DEIS	Fisheries	11	11-72	20	Causing a reduction in ecologically important geomorphic processes ...to high flows.	This needs to include effects on the tributaries to the Sacramento River. The tributaries play an important role in the health of the Sacramento River fishery and also need to be addressed. Please see the CDFW comments on the Geology chapter. In addition, correct interpretation of direct and indirect effects will be further hampered by using monthly flow and temperature data, which will miss some of the daily, or hourly effects, on a species. Comparable analyses of effects of restoration projects on fish can conclude with an adverse effect determination, for example, if juvenile fish are disturbed even one time by heavy equipment working in the area, or crossing a stream.
DFW-122								
							Above comment cont'd	The magnitude of these effects are then translated into the (direct and indirect) numerical effects (declines) on the population in order for take to be calculated by NMFS. It does not appear that this project and its associated analysis comes close to a comparable numerical (negative effect) of all actions associated with the project of raising Shasta Dam.

Page 12			SLWRI DEIS Review by CDFW					
DFW-123								
67	CDFW	SLWRI DEIS	Fisheries	11	11-86	13	Therefore, this impact would be less than significant. Mitigation for this impact is not needed, and thus not proposed.	Impacts on water quality should also be included here in the context of how inundating more old mines may affect reservoir fisheries. The potential for additional mercury contamination, already documented in the Reservoir, should also be assessed, especially as it relates in inreservoir fish.
DFW-124								
68	CDFW	SLWRI DEIS	Fisheries	11	11-86	32	Impact Aqua-4 (CP1): Effects on Special-Status Aquatic Mollusks; impact is potentially significant.	As with other chapters in this EIS (e.g. Wildlife), the conclusions developed on these impacts are essentially based upon nothing. Additional information is needed on the amount of potential habitat inundated, the direct effect on the species impacted, indirect effects, overall effect on the species' population, relative to its distribution, and cumulative effects. There is also no geographical reference by which these impacts can be observed (i.e. where around the lake perimeter are impacts being expected). This comment applies to most of these "Impact AQUA" analyses found in all alternatives.
DFW-125								
69	CDFW	SLWRI DEIS	Fisheries	11	11-88	20	Expansion of the surface area of Shasta Lake could be modestly beneficial...to this species in the lake.	References are needed to assess the degree to which the preparer has researched suitable habitat and the potential effect on this species. This comment holds true for this and other Impact sections in all Alternatives.
DFW-126								
70	CDFW	SLWRI DEIS	Fisheries	11	11-89	21	Therefore, this impact would be less than significant. Mitigation for this impact is not needed, and thus not proposed.	The tributary investigations are believed to be ongoing, so this seems predecisional.
DFW-127								
71	CDFW	SLWRI DEIS	Fisheries	11	11-92	1	High levels of suspended sediments could also cause redistribution...and could diminish the character and quality of the physical habitat...	Impacts on water quality should also include the effects of inundating old mines in Shasta Reservoir and current water quality conditions in the River below Keswick (Sacramento River is TMDL listed). This does not just apply to potential contamination during construction activity. The effect of flow changes on water quality, relative to the health of fish, should be more completely analyzed. See also the ERP milestones and actions as identified in the CALFED EIS (2000) as it relates to water quality contaminants.
DFW-128								
72	CDFW	SLWRI DEIS	Fisheries	11	11-92	33	With implementation of these environmental commitments, this impact would be less than significant. Mitigation for this impact is not needed, and thus not proposed.	This is an erroneous conclusion. The document should assess the impact to each special status species—there are four runs of Chinook salmon on the Sacramento River that spawn in this area, and their life histories are different. The impacts to these species, depending on timing and magnitude of impact, needs to be fully assessed. Similarly, management for one species may affect other species, so this needs to be also fully evaluated. Secondly, other projects, such as gravel augmentation, typically result in a "May Affect not likely to adversely affect" determination as per ESA.

Page 13			SLWRI DEIS Review by CDFW					
DFW-129								
							Above comment cont'd	When this impact is included with other impacts, as a result of the project, the determination may be different. All impacts of the entire project need to be assessed as a whole. This does not appear to have been conducted within this document. This comment applies to other impacts identified, as well as the comparable impact sections that are found in the other alternatives.
DFW-130								
73	CDFW	SLWRI DEIS	Fisheries	11	11-118	9	Impact Aqua-14: This impact would be potentially significant.	Please identify the scale to which is expected to occur. If it is potentially significant, what is being done to offset this impact? This particularly relates to the potential success of anadromous salmonids and other species that are dependent on instream habitat conditions and/or depend on habitat formed by large flow events (e.g. bank swallow).
DFW-131								
74	CDFW	SLWRI DEIS	Fisheries	11	11-121	22	Process-based interpretations suggest that potential project-related changes in flow	Please identify where this information can be found for CDFW and other agencies to review. Please also identify how the proposed flow regime, based on OCAP BO RPA requirements, expectations for certain water types to occur, and other information, is addressing the need for river meander. This should also be addressed in the cumulative effects section, given the DWR mandate for flood management (legislative mandate for developing a flood management plan). This comment can also be applied to the floodplain inundation section below.
DFW-132								
75	CDFW	SLWRI DEIS	Fisheries	11	11-122	17	Aqua-17: ...This impact would be potentially significant.	Please identify is this effect is adverse to the point of requiring a biological opinion, and put the adverse effect in context to the other adverse effects and beneficial effects as a result of project implementation. This needs to be done for each special status species and should also show the results of management for one species and the potential negative impact on another species.
DFW-133								
76	CDFW	SLWRI DEIS	Fisheries	11	11-123	23	This impact would be less than significant for striped bass...Overall, this impact would be potentially significant.	See earlier comment about the degree of significance and the extent to which this would adversely affect special status species. Ther appears to be a contradiction. This comment can be applied to other Impacts in the other 4 alternatives that address the same issue.
DFW-134								
77	CDFW	SLWRI DEIS	Fisheries	11	11-124	30-39	Downcutting of the lower tributaries could result in bank erosion...which in turn could affect riparian recruitment and succession processes.	The loss of these flow events and/or the frequency at which they occur has resulted in an OCAP BO RPA that is mandated to occur on Clear Creek. BOR should be proactive in addressing this need for higher, floodplain inundation flow events before they are potentially mandated by law to implement them. This impact is identified here, yet in the Geology chapter, it is discounted. Please also see CDFW's comments on this in the Geology comment spreadsheet.

Page 14			SLWRI DEIS Review by CDFW					
DFW-135								
78	CDFW	SLWRI DEIS	Fisheries	11	11-144	4	Mitigation for this impact is not proposed because operations ...to reduce any impacts to listed fish species.	This is incorrect. The current RPA's are developed and/or are being refined but are based upon a current dam size and CVP operations as of 2009. This document needs to address changes in actions and its impact on listed fish. We assume that new Reasonable Measures or RPA's may be developed upon consultation on this project. BOR will have to write the Biological Assessment and make a determination on the effect to these species.
DFW-136								
79	CDFW	SLWRI DEIS	Fisheries	11	11-147	12	The predicted increase in potential entrainment risk...does not allow the predicted losses to be evaluated at the population level.	As per ESA, the consultation will require the impact to the species at a population level in order to make a determination on the effect of the project. CESA will also require this kind of analysis.
DFW-137								
80	CDFW	SLWRI DEIS	Fisheries	11	11-148	6	However, these changes are unlikely to result in substantial effects ...in the CVP and SWP service areas.	This is an unsubstantiated comment. Please elaborate on and defend the conclusion that is drawn.
DFW-138								
81	CDFW	SLWRI DEIS	Fisheries	11	11-197	28	Impacts to inreservoir water quality	The Fisheries and Water Quality sections inadequately address water quality concerns related to newly inundated old and/or abandoned toxic mines, and the effect of reservoir changes on the mercury levels. Fish in the lake are already documented to have elevated mercury levels. THe DEIS needs to evaluate these impacts adequately.
DFW-139								
82	CDFW	SLWRI DEIS	Fisheries	11	11-251	41	A total of 11 miles of low-gradient reaches that could potentially provide some spawning and rearing habitat for adfluvial salmonids (estimated as 40,103 square feet for all tributaries) would be affected by CP4.	Because the tributary investigations are ongoing and incomplete, and because the document fails to state the condition or quality of this habitat, it is currently impossible to assess the impact on adfluvial salmonids. It is similarly difficult to determine mitigation measures with the analysis still in progress and the effects on special status mollusks. Please rectify. CDFW is also available to discuss this issue further, given our responsibilities as it relates specifically to the trout fishery and other natural resources in these areas.
DFW-140								
83	CDFW	SLWRI DEIS	Fisheries	11	11-253	3	As under CP4, environmental commitments for all actions would be in place to reduce effects.	Please identify where to find info on "environmental commitments". If effects are reduced, they may still need to be mitigated for to reduce it to below a level of significance. The same comment is to be used wherever "environmental commitments" is used (e.g. Impact Aqua 11 below). A determination has not been made by the permitting and/or regulatory agencies as to the effectiveness of "environmental commitments", nor does BOR know, at this point, what may be required under the permits.

Page 15			SLWRI DEIS Review by CDFW					
DFW-141								
84	CDFW	SLWRI DEIS	Fisheries	11	11-266	4	...and because of the additional volume of cold water that would be available for anadromous fish.	Management of the additional dedicated pool has not yet been defined, so it is impossible to determine the effects of that action on the fishery, or other species, below Keswick. The conclusions in this section are therefore unsubstantiated. The additional dedicated water may be used for other things than additional cold water, as was discussed in 2008. There has not been a meeting since that time to discuss management of the dedicated pool, despite numerous requests to do so.
DFW-142								
85	CDFW	SLWRI DEIS	Preliminary Draft EIS, July 2012, Botanical Resources and Wetlands	12	12-108	18 et ff.	The only MSCS species known to occur...	Discussion of impacts to Neviusia with a 6.5 foot dam dam raise should discuss the range of environmental effects that occur with the increase water level and how these will change the surrounding micro-climate of any populations not fully flooded by the higher water level. Precise computations should be presented on the populations that will be completely flooded (exterminated) from those that are suggested as only having a portion of the population destroyed. The reasons the populations are postulated as being partially destroyed must be described for each population as assumptions about ground water, local micro-climate, winds, temperatures, etc. may be correct or in error and need specification for proper evaluation for full impacts and potential for survival or extermination.
DFW-143								
86	CDFW	SLWRI DEIS	Preliminary Draft EIS, July 2012, Botanical Resources and Wetlands	12	12-125	40 et ff.	Impact Bot-2 (CP2): Loss of MSCS Covered Species	The discussion of impacts with the raise of 6.5 feet on Neviusia was projected to occur on 10 of 23 populations with some having undocumented and unspecified portions of the populations effected. This section contains minimal discussion of the increasing level of population destruction to Neviusia with the additional raise of 6 feet to 12.5 feet; and omits discussion of the effects of the loss of these populations on the composition of the species and what will be the remaining populations and how new water levels or changing land use may affect them. Further omitted are additional impacts to Vaccinium sp. and the other MSCS plant species and how these impacts would increase relative to the initial 6.5 ft. increase. This information is needed to properly evaluate the proposed alternatives and to determine if the mitigation has been properly scaled to meet the increasing level of impact with increasing losses to populations, acreage affected, and the species.

Page 16			SLWRI DEIS Review by CDFW					
DFW-144								
87	CDFW	SLWRI DEIS	Preliminary Draft EIS, July 2012, Botanical Resources and Wetlands	12	12-134	29 et ff.	Impact Bot-2 (CP3): Loss of MSCS Covered Species	The increase of the dam to 18.5 feet omits an adequate discussion of the increase in effects from the 12.5 ft level which was inadequately described and evaluated in CP2. The discussion of impacts with the raise to 18.5 feet on Neviusia is completely unknown as presented in the impact assessment. The impact is stated to be significant with no further description as to how much more significant it would be and how these increasing raises in the dam would increase the level of damage and destruction to the various species. This section omits discussion of the increasing level of population destruction to Neviusia with the additional raise of 6 feet as additional to the 12.5 ft. raise.
DFW-145							Above comment cont'd	All MSCS species should be discussed individually with the increasing impacts to the populations and how (particularly with regard to Neviusia and Vaccinium sp.) these increasing impacts will effect the species as a whole in terms of surviving intact populations, genetic and phenotypic diversity and other factors affecting species survival with some having undocumented and unspecified portions of the populations effected. Also omitted are discussions of whether additional populations would be impacted. This information is needed to properly evaluate the proposed alternatives and to determine if the mitigation has been properly scaled to meet the increasing level of impact with increasing losses to populations, acreage affected, and the species.
DFW-146								
88	CDFW	SLWRI DEIS	Preliminary Draft EIS, July 2012, Botanical Resources and Wetlands	12	12-143	1 et ff.	Impact Bot-2 (CP4): Loss of MSCS Covered Species	This impact would be similar to that discussed in CP3, which was inadequately discussed and described immediately above for CP3.
DFW-147								
89	CDFW	SLWRI DEIS	Preliminary Draft EIS, July 2012, Botanical Resources and Wetlands	12	12-161	11 et ff.	Mitigation Measure Bot-2 (CP1):...	Second bullet: "When feasible, Reclamation will relocate populations of MSCS plants..." This would primarily pertain to Neviusia cliftonii and would involve approximately 50% of the known populations of the species. There have been no studies conducted that have attempted to reestablish this species in other locations. Studies to date have not been able to determine what factors are important for the species to survive. It apparently is not a species that can easily occupy other habitat as it has limited isolated populations. Most efforts at translocating or relocating native plants have not been successful over the long term (> 25 years).

Page 17			SLWRI DEIS Review by CDFW					
DFW-148								
							Above comment cont'd	This bullet mentions "when feasible" yet does not indicate how feasibility will be determined and assessed. For most native plants there are no critieria to determine if such a project would be feasible in the sense that it also has a good chance of success. This mitigation measure is highly unlikely to succeed and needs to be fully described for each species that would be involved. Fifth Bullet: Development of mitigation and monitoring plan, states that this plan will identify suitable sites for mitigation, species to be planted, etc.; however, in the second paragraph following the sixth bullet it is written that potential mitigation lands containing comparable habitat have been identified adjacent to the project.
DFW-149								
							Above comment cont'd	These sites that have been identified should be listed now for each species and each population of each species that would be affected by the dam raise height being addressed. Missing from the discussion of the mitigation measures is what ratio of off site planting would occur for each population destroyed. For instance a starting point would be to consider that any given new mitigation population may have a 5-10% chance of success for survival of one, over the next 100 years. Therefore for each population destroyed 10-20 or more off site populations should be established. In the case of Neviusia, with the potential to destroy 12 populations, it would necessitate to establish 120-240 populations that would require monitoring for at least 50 years. For the other species and populations similar calculations would be required.
DFW-150								
							Above comment cont'd	Chance of survival should also be estimated for 500 and 1000 years or more, which may require the establishment of many more hundreds of populations for each species affected. In the case of Neviusia, which could incur 50% destruction just with the 6.5 ft. dam increas,e additional calculations for threats and long term survival in the face of climate change would be required.
DFW-151								
90	CDFW	SLWRI DEIS	Preliminary Draft EIS, July 2012, Botanical Resources and Wetlands	12	12-167	32 et ff.	Mitigation Measure Bot-2 (CP2):...	This measure is the same as for MM Bot-2 (CP1), thus the comments on this mitigation measure apply here also. In addition, there should be identification for the increase of damage to species and populations with the increase in dam height. This is absent here. There should be a full accounting for the damage to each species and population with the increase in dam height and thus the increase in terms of threats to each species and the increased costs and potential for success with increase in mitigation required.

Page 18			SLWRI DEIS Review by CDFW					
DFW-152								
91	CDFW	SLWRI DEIS	Preliminary Draft EIS, July 2012, Botanical Resources and Wetlands	12	12-170	17 et ff.	Mitigation Measure Bot-2 (CP3):...	This measure is the same as for MM Bot-2 (CP1) and for MM Bot-2 (CP2), thus the comments on these mitigation measures apply here as well and require further data. In addition, there should be identification for the increase of damage to species and populations with the increase in dam height. This is absent here. There should be a full accounting for the damage to each species and population with the increase in dam height and thus the increase in terms of threats to each species and the increased costs and potential for success with increase in mitigation required.
DFW-153								
92	CDFW	SLWRI DEIS	Preliminary Draft EIS, July 2012, Botanical Resources and Wetlands	12	12-173	6 et ff.	Mitigation Measure Bot-2 (CP4):...	This measure is the same as for MM Bot-2 (CP1) and for MM Bot-2 (CP2), and MM Bot-2 (CP3), thus the comments on these previous mitigation measures apply here also and need expansion. There should be identification for the increase of damage to species and populations with the increase in dam height. This is absent here. There should be a full accounting for the damage to each species and population with the increase in dam height and thus the increase in terms of threats to each species and the increased costs and potential for success with increase in mitigation required.
DFW-154								
93	CDFW	SLWRI DEIS	Preliminary Draft EIS, July 2012, Botanical Resources and Wetlands	12	12-178	29 et ff.	Mitigation Measure Bot-2 (CP5):...	This measure is the same as for MM Bot-2 (CP1), MM Bot-2 (CP2), MM Bot-2 (CP3), and MM Bot-2 (CP4) thus the comments on these previous mitigation measures apply here also and need expansion. There should be identification for the increase of damage to species and populations with the increase in dam height. Although this section discusses the acquisition and preservation of mitigation lands no lands are identified. In the case of Neviusia cliftonii, there are no lands with this species outside the study area that exist, if lands can be acquired for mitigation they should be listed. Lands for other species should be discussed and listed as well.
DFW-155							Above comment cont'd	Without identification and discussion of the mitigation lands, it is impossible to assess whether whether mitigation is being achieved. There should be a full accounting for the damage to each species and population with the increase in dam height and thus the increase in terms of threats to each species and the increased costs and potential for success with increase in mitigation required.

Page 19			SLWRI DEIS Review by CDFW					
DFW-156								
94	CDFW	SLWRI DEIS	Preliminary Draft EIS, July 2012, Botanical Resources and Wetlands	12	12-181	1 et ff.	Cumulative Effects	The cumulative effects section remains inadequate in addressing all special status species, habitats, and various effects that have occurred from the dam in the past and what could be expected in the future. This sections that discuss the cumulative effects that will occur with each proposed level of dam height do so in a very cursory manner and do not discuss the changes in significant detail that can be quantified and evaluated. Unfortunately, the lack of detail in the cumulative effects section is direct effect of the lack of detail and analysis in the direct effects sections that preceded this section. For example, there will be cumulative effects from implementing proposed mitigation, but because none of the mitigation lands have been identified, there is can be no discussion of what these possible effects will be.
DFW-157							Above comment cont'd	This is repeated throughtout the document. Besides Neviusia cliftonii, other plant species will incur direct and cumulative effects that will be different effects from Neviusia cliftonii a perennial shrub. Still more detail and discussion is needed for the individual special status organims will be effected and then further analysis on how these potential effects may be exacerbated by other confounding factors such as climate change, population growth and the continuing demand for water.
DFW-158								
95	CDFW	SLWRI DEIS	Preliminary Draft EIS, July 2012, Botanical Resources and Wetlands	12	12-182	1 et ff.	Although causing similar effects CP1-CP5 differ in magnitude	This sentence correctly identifies that fact that CP1-CP5 would differ in the magnitude in their effects. Unfortunately the botanical effects section does not fully disclose, identify, and quantify the increasing effects on the botanical resources. Essentially they are identified as "significant" with little additional detail. The quantification of the effects are vital to assessing the actual costs and losses, so this data can be used to accurately and effectively mitigate the true impacts. The mitigation section is weak, vague and inaccurate because the determination of effects is vague, imprecise, overly-general and mostly repetitive of the vague determinations made previously. Even the large degree of mitigation that may be required for all the resources involved may themselves have cumulative effects that should be properly quantified and may require further mitigation.
DFW-159								
96	CDFW	SLWRI DEIS	Wildlife	13	13-6	Tables 12-1 and 12-2	Table 31-1; total acres	Total acreage is useful but does not reflect the complete picture in terms of impacts. The analysis area size should be of sufficient size to evaluate the direct, indirect, and cumulative effects by life stage and species. Polygon/habitat size is also important when assessing impacts to certain species (e.g. the minimum size of a nest stand for goshawks).

Page 20			SLWRI DEIS Review by CDFW					
DFW-160								
97	CDFW	SLWRI DEIS	Wildlife	13	13-26	38	and those designated as Multi-Species Conservation Strategy (MSCS) covered species...	As per ASIP direction, the action agency (Reclamation) needs to request a species list of MSCS species and Special Habitats potentially affected by the project. This request needs to be sent to CDFW, who will provide the list. This has not happened to the best of our knowledge, so the MSCS species identified in this document may be incomplete.
DFW-161								
98	CDFW	SLWRI DEIS	Wildlife	13	13-28	Table 13-3	Table 13-4; MSCS species	As per ASIP guidelines, a list of species and special habitats potentially affected by the project must be requested. CDFW will provide this list. This has not occurred, so the MSCS species list shown may be incomplete.
DFW-162								
99	CDFW	SLWRI DEIS	Wildlife	13	13-94	21	(Shasta salamander) This impact would be significant .	These impacts need to also be related to how this loss not only affects individuals, but also how it affects the population overall. This comment also applies to all other species address in this document, and in the various alternatives.
DFW-163								
100	CDFW	SLWRI EIS	Wildlife	13	94	Section CP1	Mitigation Measure Wild-1 (CP1) Take and Loss of Habitat for the Shasta Salamander	The Mitigation measure states that 38 Shasta salamander (SS) sites are known which differs from the Wildlife Technical report that identifies 39 sites. Acres of habitat are divided in limestone and non-limestone, but no further efforts to quantify quality of habitat or probable density of SS in habitat types has been attempted and no surrogate measures have been proposed or attempted to be calculated for mitigation. Estimates can be made based upon area of habitat, estimated quality of habitat, habitat complexity in terms of moisture, vegetation diversity, and through collecting efforts stratified and allocated among sites.
DFW-164								
							Above comment cont'd	These efforts would yield figures that would allow accurate computation of mitigation needed. Direct loss of individuals can be estimated based upon the factors discussed above and others when properly applied. The mitigation measure states that surveys are on-going, but does not identify the level of survey effort, what data are being collected, nor how these data will be used to determine sufficient mitigation for the level of impact being proposed.
DFW-165								
101	CDFW	SLWRI DEIS	Wildlife	13	13-96	40	Additional analysis of impacts will be conducted ... or in the species range (if appropriate).	This is an odd statement. The preparer should know what analyses need to be conducted and include them into the EIS, not only because it is require by law but to also inform the reviewers of the extent of the impact(s).

Page 21			SLWRI DEIS Review by CDFW					
DFW-166								
102	CDFW	SLWRI DEIS	Wildlife	13	13-96 13-98	36 21	33 acres of habitat for the foothill yellow-legged frog and tailed 35 frog. Approximately 9 acres of suitable habitat would be lost... ...approximately 33 acres of suitable habitat for the northwestern pond turtle.	The definition of suitable habitat for foothill yellow-legged frogs and tailed frogs is not the same; similarly suitable habitat for the northwestern pond turtle is not clearly defined. That does not allow CDFW or anyone else to see if suitable habitat was correctly evaluated and defined. Suitable habitat includes both aquatic habitat for turtles, as well as upland/terrestrial areas that are suitable for nesting. Please clarify.
DFW-167								
103	CDFW	SLWRI DEIS	Wildlife	13	13-99	13	Construction or vegetation removal related to relocation areas is not anticipated to occur in suitable cliff habitat.	Please identify what the effect of the project is on the prey base, especially as it relates to peregrine falcons whose eyries are in near proximity to the project area. Suitable habitat includes all of those elements a species needs: Foraging, nesting/reproduction, roosting, migration.
DFW-168								
104	CDFW	SLWRI DEIS	Wildlife	13	13-100	25	Between three and six nest trees may be impacted (bald eagle)	The previous EIS identified between eight and 14 nest trees that would be impacted. This is a large change to the current predicted impact. In any case, of the total nests found around the lake, the potential impact is very significant. This is a state listed species and is also Fully Protected, as well as protected by federal law. CDFW cannot issue take on Fully Protected Species. Additional discussions are needed with CDFW and the USFWS on this significant impact. Analysis of effects on all life history elements needs to be completed (see peregrine falcon comment), including a population level analysis of effect.
DFW-169								
105	CDFW	SLWRI EIS	Wildlife	13	135	Section CP2	Mitigation Measure Wild-1 (CP2) Take and Loss of Habitat for the Shasta Salamander	The Mitigation measure identifies additional acreage of limestone and non-limestone habitat to be affected by the 12.5 ft. dam raise, but no further efforts to quantify quality of habitat or probable density of SS in habitat types has been attempted and no surrogate measures have been proposed or attempted to be calculated for mitigation. Estimates can be made based upon area of habitat, estimated quality of habitat, habitat complexity in terms of moisture, vegetation diversity, and through collecting efforts stratified and allocated among sites. These efforts would yield figures that would allow accurate computation of mitigation needed. Direct loss of individuals can be estimated based upon the factors discussed above and others when properly applied.

DFW-170							Above comment cont'd	The mitigation measure states that surveys are on-going, but does not identify the level of survey effort, what data are being collected, nor how these data will be used to determine sufficient mitigation for the level of impact being proposed. Because Wild-1 (CP1) is inadequate to assess impacts to the speces based upon the 6.5 ft. dam raise, this measure is also inadequate. Neither of these assessments provide any substantial data beyond acreage of limestone and non-limestone that is useful to identify and quantify the deleterious effects to the SS and its habitat.

Page 22		SLWRI DEIS Review by CDFW						
DFW-171								
106	CDFW	SLWRI DEIS	Wildlife	13	13-139	7	Reclamation is currently working with the USFS...Indirect and temporary impacts will be analyzed in the Final EIS.	CDFW highly recommends that Reclamation contact CDFW and USFWS to discuss the impacts to bald eagle. This is a public draft EIS and should fully disclose the potential effects to the reviewing agencies and the public to garner the best informed comments. In addition, waiting for an analysis of effects in the final EIS does not meet the intent or directives of the Fish and Wildlife Coordination Act. The same comment holds true for the next section on northern spotted owl.
DFW-172								
107	CDFW	SLWRI DEIS	Wildlife	13	13-148	4	An analysis of indirect impacts and temporary impacts will be completed in the Final EIS .	See earlier comments about having to wait for the final EIS to assess impacts. This is not conducive to compliance with FWCA.
DFW-173								
108	CDFW	SLWRI DEIS	Wildlife	13	13-148	7	Impact Wild-13 (CP1): Permanent Loss of General Wildlife Habitat	Please identify what is meant by "general" wildlife habitat. Please also identify why the HEP analysis data is not available.
DFW-174								
109	CDFW	SLWRI DEIS	Wildlife	13	13-122 13-150	32	Impact Wild-17 (CP1): Impacts on Riparian-Associated Special-Status Wildlife	See Botanical section for information on the potential miscounting of riparian acres affected. In addition, the impact cannot be completely assessed by just reporting total acres. Impacts to a riparian stand can increase edge, induce fragmentation, and expose certain bird species to parasitism by brown-headed cowbirds or predation.
DFW-175								
110	CDFW	SLWRI DEIS	Wildlife	13	13-128	14	and therefore bank swallows themselves, would be less than significant.	CDFW does not agree. The flow data used is on an monthly basis. One day of fluctuating flow could destroy a nesting colony, which has been documented to occur. In addition, there does not appear to be adequate river meander analysis done to assess the change in flow conditions and how that may affect the rate of river meander. Consider using the TNC Sac EFT information, which used bank swallow as a indicator species for cut banks, and the work of the Bank Swallow Working Group, which is developing a conservation plan for this species. CDFW's contact person for the working group in Region 1 is Scott Hill.
DFW-176								
111	CDFW	SLWRI DEIS	Wildlife	13	13-128	34	...therefore bank swallows themselves, would be less than significant.	See previous comment (above) on bank swallow.
DFW-177								
112	CDFW	SLWRI DEIS	Wildlife	13	13-150	32	... this impact would be potentially significant.	Consider using the models developed by TNC (e.g. the TUGS model and the Sac EFT) to assess these impacts more effectively.

Page 23			SLWRI DEIS Review by CDFW					
DFW-178								
113	CDFW	SLWRI EIS	Wildlife	13	157	Section CP3	Mitigation Measure Wild-1 (CP3) Take and Loss of Habitat for the Shasta Salamander	The Mitigation measure identifies additional acreage of limestone and non-limestone habitat to be affected by the 18.5 ft. dam raise, but no further efforts to quantify quality of habitat or probable density of SS in habitat types has been attempted and no surrogate measures have been proposed or attempted to be calculated for mitigation. Estimates can be made based upon area of habitat, estimated quality of habitat, habitat complexity in terms of moisture, vegetation diversity, and through collecting efforts stratified and allocated among sites. These efforts would yield figures that would allow accurate computation of mitigation needed. Direct loss of individuals can be estimated based upon the factors discussed above and others when properly applied.
DFW-179								
							Above comment cont'd	The mitigation measure states that surveys are on-going, but does not identify the level of survey effort, what data are being collected, nor how these data will be used to determine sufficient mitigation for the level of impact being proposed. Because Wild-1 (CP1) and Wild-1 (CP2) are both inadequate to assess impacts to the speces based upon the 6.5 ft., and 12.5 ft. dam raise, this measure is also inadequate. Neither of these assessments provide any substantial data beyond acreage of limestone and non-limestone that is useful to identify and quantify the deleterious effects to the SS and its habitat.
DFW-180								
114	CDFW	SLWRI EIS	Wildlife	13	209	Table 13-46	Impact Wild-1 Take and Loss of habitat for the Shasta salamander	Mitigation Measure Wild-1 is avoid, relocate, and acquire migitation lands for Shasta Salamander (SS), yet no description or quantitative assessment has been provided of the exact impacts of the proposed dam raises on the habitat of SS within the footprint of the project and no discussion of how this would effect the species as a whole has been provided. Because of the large size of the project, there may be insufficient off site land to mitigate for this species in any kind of manner that would mitigate for the full damage to the species.
DFW-181								
							Above comment cont'd	Discussion of feasibility to implement the mitigation measure needs to be provided within the context of the species distribution and abundance. Without such information any efforts or suggestions that mitigation can be accomplished are impossible. on the species biology and ecology that can be used for such mitigation actions. Delay of these until will result in the determination that the data is not available and no opportunities can be located for such actions.

Page 24			SLWRI DEIS Review by CDFW					
DFW-182								
115	CDFW	SLWRI DEIS	Wildlife	13	13-223	26	Conduct a Preconstruction Survey for the Willow Flycatcher, Vaux's Swift, Yellow Warbler, and Yellow-Breasted Chat and Establish Buffers	The scale of these impacts have not been fully disclosed upon these species, esp. the listed ones. The impacts may be beyond what the population can endure (i.e. a jeopardy situation). This needs to be evaluated in order to assess the true impacts of the project to these species; to rely on mitigation as the sole solution and/or assume it will bring the effects to a level below significance is erroneous. There is also a difference between temporal disturbance (e.g. noise, when a buffer may be used to minimize effects) and actual habitat loss, and these effects are not fully evaluated and/or disclosed. This comment applies to all of the alternatives and the species being evaluated in the document.
DFW-183								
116	CDFW	SLWRI DEIS	Wild and Scenic River--McCloud River	25	25-26	20	Within the expanded transition reach, flow conditions and fisheries would periodically be affected…	The effect would be permanent. Sites currently acting as impediments and/or barriers to upstream fish passage from the reservoir would potentially become non-barriers for periods, thereby affecting the trout fishery for some distance above the new inundation line. This comment should be applied to all alternatives where this is discussed.
DFW-184								
117	CDFW	SLWRI DEIS	Wild and Scenic River--McCloud River	25	25-30	24	…this entire area would be inundated only during peak water levels in the spring of wet years.	This sentence is misleading. The effects of inundation would be permanent, despite occurrence of "only" seasonal peak water levels. The comment should be applied to all alternatives where this is discussed.
DFW-185								
118	CDFW	SLWRI DEIS	Wild and Scenic River--McCloud River	25	25-30	36	Since mitigation for this impact is currently under development, the significance after mitigation has not yet been determined.	The determination of adverse effect is the responsibility of the Secretary of the Natural Resources Agency. The idea of mitigation for an adverse effect to a state Wild and Scenic River has not been fully vetted with the State to see if this is even an option. In addition, by not having those conversations/meetings and assessing the effect, BOR may be unnecessarily expending federal funds on this project should the potential adverse effect to the McCloud River be insurmountable.
DFW-186								
119	CDFW	SLWRI DEIS	Wild and Scenic River--McCloud River	25	25-31	6	…would not be adversely affected beyond the upstream extension of the transition reach .	While the free flowing condition may not be affected above the upstream extension, the fact remains that the free-flowing conditions of the river would be (permanently) adversely affected by the upstream extension of the transition reach.

DFW-187 120	CDFW	SLWRI DEIS	Wild and Scenic River--McCloud River	25	25-41	13	The 2009 NMFS Biological Opinion described...the details of this project are ill-defined...result in benefits 12 to some of the values and resources of the lower McCloud River.	Due to the 2012 Bagley Fire, plans are underway for salvage logging and post fire vegetation within the McCloud River watershed. This should also be mentioned and included, particularly due to the potential for fire-related erosion to occur. The cumulative effects also does not appear to be complete, as per NEPA and CEQA guidelines on what should be included in a cumulative effects analysis. In addition, scoping and NEPA document preparation has started on the pilot reintroduction project; this should be updated. Finally, the potential loss of habitat due to an inundation, potential effects from salvage logging, and the lack of information on other cumulative effects should not lead to a conclusion of beneficial effects.

Page 25		SLWRI DEIS Review by CDFW						
DFW-188 121	CDFW	SLWRI DEIS	Wild and Scenic River--McCloud River	25			General comment	The Secretary of the Natural Resource Agency is responsible for making an adverse effect determination on a river that is identified within the State Wild and Scenic Rivers Act. Until that time, the conclusions drawn in the draft document are pre-decisional.
DFW-189 122	CDFW	SLWRI DEIS	Other Required Disclosures	26	26-12	1	This EIS provides ...necessary for USACE to determine the LEDPA consistent with Section 404(b)(1) guidelines.	This conclusion is questionable. Section 404 requires detailed information that is not readily found within the draft EIS. ACOE also requires a letter identifying lead agency, and ESA consultation prior to obtaining permit request to comply with Section 404, as well as a wetland delineation.
DFW-190 123	CDFW	SLWRI DEIS	Other Required Disclosures	26	26-12	22	This EIS provides a substantive portion of the environmental information necessary for Reclamation to determine the Environmentally Preferable Alternative.	The DEIS has identified that analyses are ongoing and are not complete. Therefore, this statement is seriously questionable. Full disclosure has not occurred on the effects, particularly on the effect to listed species. Public release of this draft is similarly questionable. See also the CDFW letter to BOR on the subject of the preferred alternative and environmentally superior alternative sent in April 2013.
DFW-191 124	CDFW	SLWRI DEIS	Other Required Disclosures	26	26-12	28	...the environmentally preferable alternative will be identified in the in the Final EIS and Record of Decision.	CDFW disagrees with this approach. It is not consistent with CEQA Guidelines and is also contrary to directives and intent of the Fish and Wildlife Coordination Act. See our cover letter and the April 2013 letter to BOR for more information on this topic/issue.
DFW-192 125	CDFW	SLWRI DEIS	Power and Energy	23	23-1	14	Pit 7 Powerhouse	There would be an impact to PG&E's Pit 7 powerhouse. It is anticipated that the higher water level result in turbines being below the water level. Some engineering solutions (if feasible) would have to occur for that powerhouse to continue operations. An additional impact would be the potential (because of the higher water level) for boaters and houseboat to move further up the Pit River than what is currently open. CDFW would appreciate participating in additional discussions on this particular project element, given our role in reviewing FERC licenses.

Attachment 2	Shasta Lake Water Resources Investigation Draft Environmental Impact Statement Comment Form						
Reviewer Name:	Andrew Jensen, Monty Currier, and Patricia Bratcher						Draft Fisheries and Aquatic Ecosystems Technical Report
Reviewer Email:	andrew.jensen@wildlife.ca.gov; monty.currier@wildlife.ca.gov, patricia.bratcher@wildlife.ca.gov						
Reviewer Agency:	CA Dept. of Fish and Wildlife						
601 Locust St., Redding, CA 96001							
Date: August 2013							
ITEM	REVIEWER	CHAPTER TITLE	CHAPTER NUMBER	PAGE NUMBER	LINE NUMBER	TEXT	COMMENT
DFW-193							
1	CDFW	Draft Fisheries and Aquatic Ecosystems Technical Report - June 2013	1	1-3	2nd Paragraph	Increased storage and the corresponding increase ...because available habitat area is increased.	Broad statement that is unsubstantiated, and does not take into account the loss of biomass that currently exists within the footprint of the increased storage area.
DFW-194							
2	CDFW	Draft Fisheries and Aquatic Ecosystems Technical Report - June 2013	1	1-3	2nd Paragraph	Riffle habitat with gravel substrates and...habitats are still insufficient to support healthy salmonid populations.	This is not necessarily true. Provide supporting documentation/sources.
DFW-195							
3	CDFW	Draft Fisheries and Aquatic Ecosystems Technical Report	1	1-4		This reach provides much of ...though the amount of gravel available is insufficient.	Paragraph info seems contradictory. It first says it contains gravel needed for spawning, but then says the amount of gravel is insufficient.
DFW-196							
4	CDFW	Draft Fisheries and Aquatic Ecosystems Technical Report	1	1-5	2nd Paragraph	The channel takes on varying widths...and shallow vegetated floodplain areas that become inundated during high flows.	IN the Red Bluff to Colusa reach, there are several substantial levees and/or riprapped areas that have affected river meander. See the bank swallow study information, the TNC Sacramento River study, NODOS studies, and the Army Corps of Engineers Phase II Sacramento River Project for more information.
DFW-197							
5	CDFW	Draft Fisheries and Aquatic Ecosystems Technical Report	1	1-8	1st Paragraph	Sacramento-San Joaquin Delta	To whatever extent it may be needed, this section and other sections discussing the lower Sacramento River should be updated to reflect existing conditions within the BDCP documents.
DFW-198							
6	CDFW	Draft Fisheries and Aquatic Ecosystems Technical Report	1	1-15	21	Increased storage and the corresponding...and a greater abundance of plankton and fish...	This has already been commented on above. This is not necessarily true. Additional modeling of the cold water pool and possible changes in stratification, as a result of different dam raises and water outflow management, should be conducted to truly assess quantifiable changes to habitat and population response within the reservoir.
DFW-199							
7	CDFW	Draft Fisheries and Aquatic Ecosystems Technical Report - June 2013	1	1-19	2nd Paragraph	Most of the lower gradient, potentially fish-bearing reaches of tributary streams to Shasta Lake are near their confluence with the reservoir.	Increased storage height will likely result in the loss of the currently available lower gradient habitat. fish bearing reaches within the tributary streams.

Page 7	Shasta Lake Water Resources Investigation DEIS--Fisheries and Aquatic Ecosystems Technical Report						
DFW-200							
8	CDFW	Draft Fisheries and Aquatic Ecosystems Technical Report	1	1-21	3rd paragraph	Increased storage (line 20-23)	As far as the sport fishery this statement is true. The raising of the reservoir level would increased nutrient load, increased surface area. Additional habitats would be available for reservoir fishes, as well as other aquatic organisms (ie plankton/zooplankton) which would benefit.
DFW-201							
9	CDFW	Draft Fisheries and Aquatic Ecosystems Technical Report	1	1-22	2- and 6th paragraph	line 14-42	The effects of sport fishing are minimal on the black bass fishery due to the majority of anglers practice catch and release, unlike the majority of cold water anglers whom harvest their catch. Additionally Largemouth and sunfish reproduction is reduced due to the annual drawdown of the reservoir during these fishes spawn season. Survival of fry is also effected due to the lack of beneficial habitat, which often leads to predation and loss of warm water fish recruitment to the reservoir.
DFW-202							
10	CDFW	Draft Fisheries and Aquatic Ecosystems Technical Report – June 2013	1	1-32	3rd Paragraph	Juvenile winter-run Chinook salmon rear in the Sacramento River from July ... and smolts pass the RBDD by March (Martin et al., as cited in NMFS 2009).	Likely not "ALL" winter-run (WR) Chinook fry and/or emigrating pre-smolts and smolts are past the RBDD by Oct and March, respectively. The minimum size of WR in early Nov (in the high 30's mm) is probably still fry sized, thus the statement that all fry are past RBDD by Oct is too inclusive. Department staff have observed that they continue to emigrate out and grow and rear all winter in the mainstem. The USFWS has charts describing WR and other run emigration from RBDD over the past decade or so, which illustrates that MOST WR are out by end of March but there are always a few left coming out so the "ALL" term used is not accurate.
DFW-203							
11	CDFW	Aqua Tech Rept	Fisheries	1-32	15	All winter-run Chinook salmon fry 17 pass the RBPP by October;	In the last two years, some winter-run adults have "delayed" spawning until August, which means that not all fry will be hatching and passing RBPP by October. Consider contacting Doug Killam, CDFW, for more info.
DFW-204							
12	CDFW	Draft Fisheries and Aquatic Ecosystems Technical Report - June 2013	1	4	[illegible]	[illegible]	The Department previously commented on the issue of Spring-run Chinook salmon in our 2008 comment letter, stating that Region 1 has determined that due to the question of genetic integrity of spring-run in the upper Sacramento River, it is not worth including them in the analysis for this project. The extent of spring-run Chinook salmon spawning in the mainstem of the upper Sac River remains unclear. As previously stated, due to geographic overlap of ESU's and resultant hybridization since the construction of Shasta Dam, Chinook salmon that spawn in the mainstem during September are more likely to be early fall-run Chinook rather than spring-run Chinook salmon.
DFW-205							
13	CDFW	Draft Fisheries and Aquatic Ecosystems Technical Report			[illegible]	[illegible]	Butte Creek is also a key spring-run Chinook stream. The document should possibly also mention the presence of spring-run Chinook on Clear Creek, which is a significant tributary in the upper Sacramento River system and a CVP stream.
DFW-206							
14	CDFW	Draft Fisheries and Aquatic Ecosystems Technical Report				Indirect evidence indicates that green sturgeon... reported in the mainstem as far north as Red Bluff.	[illegible]
DFW-207							
15	CDFW	Draft Fisheries and Aquatic Ecosystems Technical Report				New Zealand Mud Snail and Quagga Mussel	Discussion of the mud snail and quagga mussel needs to be updated to reflect current data and/or reports on their presence and level of threat, including within the reservoir footprint.

Page 3		Shasta Lake Water Resources Investigation DEIS Comment Form – Fisheries and Aquatic Ecosystems Technical Report					
DFW-208							
16	CDFW	Draft Fisheries and Aquatic Ecosystems Technical Report				General comment	The Department has provided numerous comments that have not been sufficiently addressed, specifically from a fisheries perspective including but not limited to the need for clarification on Alternative CP4, use of SALMOD and ongoing concerns the Department has with the use of SALMOD, the discussion and inclusion of spring-run in the project documents, and impacts to the fishery habitat below Shasta Dam. Until these comments are adequately addressed, they will remain valid and the Department will look forward to an adequate response.
DFW-209							
17	CDFW	Draft Fisheries and Aquatic Ecosystems Technical Report				Gen comment	As described in the Environmental Impact Statement (EIS) Chapter 11, the SALMOD was used to support technical analysis. SALMOD is not designed to be used to address a variety of fisheries-related issues and/or impacts, such as whether or not changes in operation, with a dam raise, would affect the spread of quagga mussels, or the tradeoff in managing for one Chinook run over another. It also mentions the potential effect of redd dewatering but does not quantify or analyze its effect. Please also see our previous letter on the Department's concern about use of SALMOD.

Attachment 3		Shasta Lake Water Resources Investigation Draft Environmental Impact Statement June 2013					CDFW Water Branch Comments
Reviewer Name:		Jason Roberts (JDR), Chad Dibble (CSD)					
Reviewer Email:		Jason.Roberts@wildlife.ca.gov, Chad.Dibble@wildlife.ca.gov					
Reviewer Agency:		California Department of Fish and Wildlife					
Reviewer Mailing Address:		830 S Street, Sacramento, CA 95811					
Date:		August 2013					
ITEM	REVIEWER	CHAPTER TITLE	CHAPTER NUMBER	PAGE NUMBER	LINE NUMBER	TEXT	COMMENT
DFW-210							
1	CDFW	Executive Summary		ES26	Table S-2	see comment	The listed increase in outmigrating chinook salmon should be qualified by a date
DFW-211							
2	CDFW	Plan Formulation	2	2-49	35	see comment	*"This alternative may also include development... impacts to water supply reliabi*
DFW-212							
3	CDFW	Plan Formulation	3	Various	unknown	see comment	*"The majority of increased farm yield...would be for south-of-Delta agricultural or*
DFW-213							
4	CDFW	Global	Global	Global	Global	see comment	When discussing SOD deliveries, CVPIA refuge water supply Section 3406(d) mus
DFW-214							
5	CDFW	Various	ES, Chapters 3 and 6	ES-28, 3-6, 3-24, 6-13	18, 3, 29, and 24 re	see comment	Analysis and inclusion of 2008 USFWS and 2009 BO RPA. Judge Wanger issued hi
DFW-215							
6	CDFW	Modeling Appendix	Modeling Appendix	2-9	unknown	see comment	CVPIA refuge water supply assumptions and associated notes in Table 2-1 are not accurate. Please correct. Additionally, this table needs to include full allocations of incremental level 4 refuge water supply.

Attachment 1	Shasta Lake Water Resources Investigation Draft Environmental Impact Statement - June 2013						
Reviewer Name:	Jennifer Carlson, Patricia Bratcher, and Richard Lis					Wildlife Resources Technical Report Comments	
Reviewer Email:	Patricia.Bratcher@wildlife.ca.gov ; Richard.Lis@wildlife.ca.gov						
Reviewer Agency:	CDFW						
Reviewer Mailing:	601 Locust St , Redding, CA 96001						
Date:	August 2013						
ITEM	REVIEWER	CHAPTER TITLE	CHAPTER NUMBER	PAGE NUMBER	LINE NUMBER	TEXT	COMMENT
DFW-216 1	CDFW	Wildlife Resources Technical Report	1	1-5	15	The California Natural Diversity Database	Info from both the CNDDB and the USFWS ES Database (ESA Species List) needs to be requested, as the species presence list is over 5 years old.
DFW-217 2	CDFW	Wildlife Resources Technical Report	1	1-6	Table 1-1	Table 1-1	Table 4.7 of the MSCS identifies vernal pools as a habitat type within the Natural Seasonal Wetland Habitat Type. Vernal pools occur within the primary study area (in and near Redding, for example) and should be included within this table.
DFW-218 3	CDFW	Wildlife Resources Technical Report	1	1-6	Table 1-1	Table 1-1	There is very little description about what purpose Table 1-1 serves or how it will be used or interpreted. Clarification needed.
DFW-219 4	CDFW	Wildlife Resources Technical Report	1	1-9	Tables 1-2 and 1-3	Table 1-2 and 1-3	These tables show summary of wildlife habitat in the impoundment area as well as the relocation areas. Does this also reflect the acres of habitat that would be inundated? If so, specifying that would be helpful because it is not evident to me. It would be useful to include a total acreage value by habitat type. The totals of acres by lake arms isn't all that useful from a wildlife perspective.
DFW-220 5	CDFW	Wildlife Resources Technical Report	1	1-11	Figure 1-2a	Figure 1-2a to 1-2f	These maps are very hard to read due to the scale. Perhaps breaking up the maps into more sections and zooming in would be better. Shouldn't there be more "affected" habitat in the inundation zone that what is shown?
DFW-221 6	CDFW	Wildlife Resources Technical Report	1	1-30	15	Oak woodlands	The habitat section is very sparse in terms of details on this habitat type, including a little more detail would be preferable including species occupying this habitat.
DFW-222 7	CDFW	Wildlife Resources Technical Report	1	1-38	Table 1-4	Northern goshawk	The potential for occurrence states that it is known to occur in the upper McCloud arm but does not specify if this is in the primary study area or not. Please clarify.
DFW-223 8	CDFW	Wildlife Resources Technical Report	1	1-41	37	Shasta salamander	Take and loss of Shasta salamander (SS) is discussed and known from 39 sites surveyed to date. The survey methods were not discusseed in detail and the information about the size of the populations at the site is not given presented, thus it is not possible to calculate the actual take and loss of the SS. This species may be quite limited in its ability to migrate and thus the genetic diversity of the species throughout the study area should be investigated. There may be unique genetic populations dispersed within the impact area that would guide the design of mitigation options. It is likely that this species incurred significant habitat losses when Shasta Dam was built and filled. Further enlargement of the dam will cause further decline in the species habitat that needs to be estimated and included in full assessment of impacts to the species. SS habitat includes subterranean habitat to which access is important during the dry summer months. Therefore the inundation and destruction of habitat must account for the loss of subterranean habitat even if the water level does not completely submerge the habitat.
DFW-224						Comment #8 cont'd	All sites must be enumerated and sites that may be above full pool elevations must be identified as to whether subterranean habitat would be destroyed such that survival of the site is reduced or rendered impossible. These sites must also be included in mitigation calculations.

Page 2		Shasta Lake Water Resources Investigation DEIS Comment Form--Wildlife Resources Technical Report					
DFW-225 9	CDFW	Wildlife Technical Report	1	1-41		Terrestrial Mollusks	Impacts to the terrestrial mollusks are presented in terms of CWHR habitats and acreage yet there is no discussion about the actual sites where these mollusks were located and what microhabitat conditions exist on site to allow there existence. These mollusks are not equally and evenly distributed across within the habitat of any of the habitat types. They will undoubtedly be found in varying distribution and abundance within and between habitats. Analysis of these variables is needed both to identify complete impacts to the species and for determination of complete mitigation. Additional discussion must include the range of each species and the fraction of destruction to the totality of known populations of each species. These species also would have incurred extirpation of populations with the original construction of Shasta Dam. Estimates of the original destruction of species and the likely remaining is needed to accurately assess the cumulative effects of proposed future actions. Additional analysis should include assessment of what limits may exist for each species,
						Comment #9 cont'd	such as elevation, because certain species may not be able to be exist at the same densities at higher elevations where temperatures and moisture would be subject to greater variation. All of this information is needed to develop complete and species specific mitigation plans.
DFW-226 10	CDFW	Wildlife Resources Technical Report	1	1-67	16	Pacific fisher	The statement is made that the carnivore surveys and detections of fisher for this project are the southeastern-most occurrences. This is an untrue statement and needs to be removed. Fishers have been detected south of the Fountain Fire area. Detections were both on public and private land, south of Burney and north of Shingletown. Several detections of fisher have been recorded in this area.
DFW-227 11	CDFW	Wildlife Resources Technical Report	1	1-68	Table 1-5	Table 1-5	The effects to this and other species needs to be re-evaluated once a project footprint is finalized. To date, the location of sites to be mined for minerals to create cement is not completed, nor are the footprint of relocated facilities, roads, etc. In addition, due to the potential change in water management (including CP4, which includes a dedicated pool for natural resource uses), the potential for effect is largely incomplete. Upon completion of the actual project footprint and management plan, this an other documents that assess effects to species and special habitats needs to be redone. Similarly, using water to manage for one species (e.g. winter-run Chinook) may have negative effects on another species (e.g. bank swallow). This also needs to be analyzed.
DFW-228 12	CDFW	Wildlife Resources Technical Report	1	1-68	Table 1-5	Table 1-5, California Red-legged Frog (CARLF)	For the CARLF, only protocol surveys can determine presence/absence as per ESA, so this determination is pre-decisional. Foothill yellow-legged frogs are know to occur in the valley section of tributaries on the west side of the Sacramento River, so this determination is wrong.
DFW-229 13	CDFW	Wildlife Resources Technical Report	1	1-69	29	Swainson's Hawk	The species range of this species, as per DFW mapping websites, shows it extending up into the middle of Tehama County, which is just below Shasta County. In addition, migratory patterns should be taken into account, since this species is known to occur (nest) in the Klamath Basin.
DFW-230 14	CDFW	Wildlife Resources Technical Report	1	1-107	25	Land Management	The BLM Land and Resource Management Plan for the Redding Field Office should also be included on this list. BLM manages land on Clear Creek and along the Sacramento River, in addition to inholdings near and/or around Shasta Lake. Similarly, the USFS Mendocino National Forest manages a piece of property adjacent to Red Bluff Diversion Dam. Reference to its Land Management Plan should also be included. Similarly, there are extensive areas of land managed along the River by the Department of Water Resources, the Department, and State Parks.

DFW-231	15	CDFW	Wildlife Resources Technical Report: Attachments 1-7	Attachment 2	A5-1		Table A1-1	See comments below. This table is incomplete and needs to be updated to include additional species, particularly MSCS species. The CNDDB search is over 5 years old. See also comment about relying on just CNDDB for presence/absence determinations. As per MSCS, special habitats also need to be addressed. A list of special habitats can be requested and provided by the CDFW.

Page 3			Shasta Lake Water Resources Investigation DEIS Comment Form--Wildlife Resources Technical Report					
DFW-232	16	CDFW	Wildlife Resources Technical Report: Attachments 1-7	Attachment 2	A2-6		Purple martin	The statement is made that 14-51% of the known nesting colonies for purple martin is along the Shasta Lake shoreline. That seems like a significant part of the nesting habitat for a species that is state-listed Species of Special Concern.
DFW-233	17	CDFW	Wildlife Resources Technical Report: Attachments 1-7	Attachment 2	A2-7		Shasta salamander	It is not Clear! specified in the species life history, like for the other species, the extent of the locations or numbers of the shasta salamander detections. Please elaborate on the extent of the detections that would be inundated.
DFW-234	18	CDFW	Wildlife Resources Technical Report: Attachments 1-7	Attachment 4	Attachment 5		General Comment	CNDDB should not be the only source of info to determine whether or not a species is present. It is only as good as what is reported by people. USFS records, Audubon studies, Christmas Bird count data, and WHR should also be investigated to determine potential presence. I have personally seen black-crowned night herons in the Redding vicinity, and it is a species identified in the MSCS, as are several others below.
DFW-235	19	CDFW	Wildlife Resources Technical Report: Attachments 1-7	Attachment 5	Attachment 5		State and Federal lists of Special-status wildlife species	The lists in the referenced attachment for both state and federal species are outdated. These lists expired in 2007, which is at least 4 years out of date. Please include an updated list within the last year.
DFW-236	20	CDFW					General Comment	They have not adequately addressed the effects on wildlife as far as quantification of the effect and lack of detail on impacts.
DFW-237	21	CDFW					General Comment	As far as I can tell, they have not adequately addressed the species in DFW's 2008 letter including: Shasta salamander, peregrine falcon, purple martin, bald eagle, and bank swallow. They did address additional species, i.e. deer range, but could include a map showing these special habitats that will be impacted.
DFW-238	22	CDFW	General	Throughout			Maps	It would be easier to understand what is going on if the maps were not broken up into 10 different smaller maps. One large map would be more helpful when looking at the project at least for the Shasta Lake and vicinity area.
DFW-239	23	CDFW	General	Throughout				The wildlife habitat description section could be improved. There are some major inconsistencies among the habitat types described as far as some that include species occupying the habitat, and others do not. Some of the habitat descriptions list the vegetation species that make up the habitat type and others do not. Habitat descriptions at a minimum should include an extensive description of what features make it the habitat it is.
DFW-240	24	CDFW	Wildlife Resources Technical Report	General Comment			Shasta salamander	Take and loss of Shasta salamander is discussed and known from 39 sites surveyed to date. The survey methods were not discussed in detail, and the information about the size of the populations at the sites is not presented. Therefore, it is not possible to calculate the actual take and loss of the species.
DFW-241	25	CDFW	Wildlife Resources Technical Report	General Comment			Shasta salamander	This species may be quite limited in its ability to migrate, so the genetic diversity of the species throughout the study area should be investigated. There may be unique genetic populations dispersed within the impact area that would guide the design of mitigation options. It is likely that this species incurred significant habitat losses when Shasta Dam was built and filled. Enlargement of the dam will cause further decline in the species habitat that needs to be estimated and included in full assessment of impacts to the species.
DFW-242	26	CDFW	Wildlife Resources Technical Report	General Comment			Shasta salamander	Shasta salamander habitat includes subterranean habitat to which access is important during the dry summer months. Therefore, the inundation and destruction of habitat must account for the loss of subterranean habitat even if the water level does not completely submerge the habitat. All sites must be enumerated and sites that may be above full-pool elevations must be identified as to whether subterranean habitat would be destroyed such that survival of the site is reduced or rendered impossible. These sites must also be included in mitigation calculations.

Page 4			Shasta Lake Water Resources Investigation DEIS Comment Form--Wildlife Resources Technical Report					
DFW-243	27	CDFW	Wildlife Resources Technical Report	General Comment			Peregrine Falcon	Effects to this species and other raptors were not clearly identified. This includes the potential for effect by construction-related impacts during the nesting season. Mitigation measures should include at least one preconstruction survey for this species within the disturbance area boundary and a buffer sufficient to address the potential for disturbance, as supported by scientific literature and/or in accepted peregrine falcon management plans. Clarification is needed on when this preconstruction survey would occur.
DFW-244	28	CDFW	Wildlife Resources Technical Report	General Comment			Bald Eagle	Although the bald eagle is no longer listed under ESA, it remains listed as Endangered pursuant to CESA. It is also a fully protected species pursuant to FGC Section 3511 and is provided protection pursuant to the federal Bald and Golden Eagle Protection Act (16 U.S.C. 668a-d). The FR, Technical Reports/Attachments, and future environmental documents need to fully analyze the effect of a loss of habitat and nest trees on individuals and on the population in general, and analyze the entire project footprint (primary study area and extended area combined) to make an overall determination of effects of the project on bald eagle.
DFW-245	29	CDFW	Wildlife Resources Technical Report	General Comment			Purple martin	Purple martin could be similarly affected by inundation. The total inundation of snags used by purple martin would result in a temporary, if not permanent, loss of nesting habitat for purple martin, although new habitat could eventually be created after trees are inundated and die. There are very few colonies within Shasta County; Shasta Reservoir represents 14% to 51% of the total interior Northern California population of western purple martin (Williams 1998). No mitigation seems to be proposed for the direct loss of nest trees that will be inundated by Alternatives CP1-CP5. If feasible, mitigation measures must be implemented to offset this impact (which is identified as significant).
DFW-246	30	CDFW	Wildlife Resources Technical Report	General Comment			Bank Swallow	The FR and Technical Reports/Attachments contain contradictions and relies upon improper information with regard to the potential impact on listed species. An example of this is the impact to the State-listed Threatened bank swallow (Riparia riparia). Use of monthly flow models cannot reflect the daily or hourly flow fluctuations caused by dam releases that can destroy a nesting colony. The 2008 Administrative Draft Environmental Impact Statement/Environmental Impact Report (ADEIS/R) (Reclamation 2008) identified a potentially significant impact.
DFW-247	31	CDFW	Wildlife Resources Technical Report	General Comment			Bank Swallow	The Sacramento River is estimated to support about 75% of the State's bank swallow population (Garrison 1998). The Department considers the combination of a loss of high flows, which encourage bank erosion, and daily flow fluctuations caused by dam releases during nesting, a potentially significant impact.

Attachment 5 Shasta Lake Water Resources Investigation DEIS Comment Form- CDFW Version June 2013

Reviewer Name: Jeffrey Shu **CDFW Water Quality Technical Report Comments**
Reviewer Email: jeffrey.shu@wildlife.ca.gov
Reviewer Agency: CA Dept. of Fish and Wildlife
Reviewer Mailing Address: 830 S Street., Sacramento, CA 95814
Date: Sept 2013

ITEM	REVIEWER	CHAPTER TITLE	CHAPTER NUMBER	PAGE NUMBER	LINE NUMBER	TEXT	COMMENT
DFW-248	1 CDFW	Water Quality Technical Report Abbreviations and Aconyms	0	iii	N/A	OCAP Operations and Criteria Plan	OCAP Operations, Criteria and Plan
DFW-249	2 CDFW	Water Quality Technical Report Abbreviations and Aconyms	0	iv	N/A	X2 estuarine habitat	X2 location of 2 psu salinity isohaline
DFW-250	3 CDFW	Water Quality Technical Report Chapter 1 Affected Environment	1	1-4	24	trace metals and heavy metals	To make it more clear that the same thing is being talk about throughout the document, the document should refer metals as either trace metals, heavy metals or simply "metals".
DFW-251	4 CDFW	Water Quality Technical Report Chapter 1 Affected Environment	1	1-4	41	The quality of water in the Sacramento River is relatively good.	There is no context what "relatively good" means. 2010 303(d) list say that the Sacramento River is impaired for unkwown toxicity. CALFED 2000a states that acute toxicity from acidic drainage water from abandoned mine tailing have resulted in fish kills and contribute to long-term growth and reproduction impacts to fish.
DFW-252	5 CDFW	Water Quality Technical Report Chapter 1 Affected Environment	1	1-5	10	Table 1-1	The water quality objectives are still not correct per Table III-1 and Table III-2 from the 2009 Basin Plan. The footnote for the metal objectives should state they are measured as dissolved concentrations and are hardness-based criteria. Would be nice to cite data that is more current.
DFW-253	6 CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-6	Table 1-1 footnote b	Basin Plan Water Quality Objective	The applicable Basin Plan objective for the Sacramento River at Red Bluff is what is described as "Sacramento River from Keswick Dam to Hamilton City". The dissolved oxygen objective from June 1st to August 31st for this specific water body is 9.0 mg/l. The dissolved oxygen saturation objective is 95% or above saturation when natural conditions are lower than 9.0 mg/l during the same time period.

Page 2		SLWRI DEIS Comments by CDFW - Water Quality					
DFW-254							
7	CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-7	20-21	RBPP to Knights Landing is listed as an impaired water body under the EPA's Section 303(d) list for mercury and unknown toxicity.	Tthe 2010 303(d) list for RBPP to Knights Landing now includes DDT, dieldrin, mercury, PCBs, and unknown toxicity.
DFW-255							
8	CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-7	23-25	The parameters of concern in the Sacramento River from Knights Landing to the Delta include diazinon, mercury, and unknown sources of toxicity.	The 2010 303(d) list for Knights Landing to Delta now includes chlordane, DDT, dieldrin, mercury, PCBs, and unknown toxicity. It no longer includes diazinon. Also, it's not listed for "unknown sources of toxicity" although it does state the source of the unknown (water) toxicity is unknown.
DFW-256							
9	CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-14	13-15	Table 1-2	The estimated area, if summing Horse Creek, Town Creek, and Little Backbone Creek, should add up to 2.38 miles, Shasta Lake is 27335 acres. If you are assessing potential pollutant sources to Shasta Lake, you should include Pit River which contributes sources of agricultural pollutants. The citation should be updated to SWRCB 2010.
DFW-257							
10	CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-15	17	West Straw Creek	Typo. Should be "West Squaw Creek".
DFW-258							
11	CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-16	12-18	CVRWQCB determination	This is an outdated determination. The 2010 303(d) list has removed cadmium, copper, and zinc as impairments but added unknown toxicity as an impairment of the upper Sacramento River between Keswick Dam and Cottonwood Creek. Only the upper Sacramento River between Cottonwood Creek and Red Bluff is listed for mercury as this was the part of the upper Sacramento River where fish tissue samples were collected.
DFW-259							
12	CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-17	2	mercury (CVRWQCB 2002)	"chlordane, DDT, dieldrin, mercury, PCBs, and unknown toxicity (SWRCB 2010)."

Page 3		SLWRI DEIS Comments by CDFW - Water Quality					
DFW-260							
13	CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-17	3-11	Delta waterways	All of the Delta waterways, including the western Delta, fall under the CVRWQCB jurisdiction. There are also other pollutants of concern that impair the Delta waterways. There are no sources of mercury from agriculture; they are primarily from abandoned mines. Agriculture is the primary source of pesticide pollution. The Delta is also impaired by invasive species.
DFW-261							
14	CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-17	12	CVP/SWP Service Areas	Influences on the south Delta water quality should also include, tidal influences, island innudation, from operations of diversion facilities and water storage facilities, in addition to the mentioned sources in the previous sections. Selenium in the CVP/SWP Service Areas is affected by agricultural uses of groundwater which is then drained into the San Joaquin River The document should be careful with interchanging the terms water quality with salinity. Also, not sure if this section is supposed to only discuss metal pollution or is to include pesticide and nutrient pollution.
DFW-262							
15	CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-23	4-13	Two agencies with key planning roles...	CALFED doesn't exist any more. The state legislation SB X7 1 enacted the Sacramento-San Joaquin Delta Reform Act of 2009 and replaced CALFED with new co-equal goals of more reliable water supply and a healthy ecosystem and new implementing agencies. The primary Delta planning agencies are the Delta Protection Commission, Sacramento-San Joaquin Delta Conservancy, and the Delta Stewardship Council. The Delta Stewardship Council's Delta Plan is the primary planning document. Delta Vision Strategic Plan is the framework for the planning documents and implementing Delta agencies.
DFW-263						Comment 15 cont'd	Other Delta documents include: o The Delta Protection Commission's Land Use and Resource Management Plan for the Primary Zone of the Delta ("RMP") o The Delta Protection Commission's Land Use and Resource Management Plan for the Primary Zone of the Delta ("RMP") o The 2012 Central Valley Flood Protection Plan ("CVFPP") o The 2011 Habitat Management, Preservation and Restoration Plan for the Suisun Marsh ("Suisun Marsh Plan"); and o The Suisun Marsh Preservation Act of 1977.

Page 4			SLWRI DEIS Comments by CDFW - Water Quality				
DFW-264 16	CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-25	34	control of nonpoint source pollution	Should be "control of point source pollution". Runoff from construction and industrial activites is classified as a point source as the discharge goes into a strom drain or man-made ditch that discharges to a water body. These activites require a 402 NPDES permit. If the activity moved dredge or fill material into a water of ths US, it would require a 404 permit and 401 certification. A 401 certification would be required regardless of, dredge or fill, as long as a project has hydromodification impacts or modification to a FERC hydropower facility, which would be the primary result of this project.
DFW-265 17	CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-28	18-19	The most prevalent contaminants in the Sacramento River basin are for organophosphate pesticides (agricultural runoff) and trace metals (acid mine drainage), for which TMDLs currently are being considered.	The Upper Sacramento River TMDL for Metals has been in place since April 2002 and some contaminants have been removed form the 303(d) list. The Sacramento and Feather Rivers TMDL for diazinon and chlorpyrifos (organophosphate pesticides) has been in place since August 2008.
DFW-266 18	CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-32	6	September 2009	Last revision was October 2011 http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr.pdf
DFW-267 19	CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-32	15-31	list of beneficial uses	Should make the beneficial uses terms consistent between the two water bodies to make the list of uses more comparable. Shasta Lake is: municipal and domestic supply, irrigation, hydropower generation, water contact recreation, noncontact recreation, freshwater habitat (warm and cold), spawning habitat (warm and cold), wildlife habitat Sacramento River is: municipal and domestic supply, irrigation and stock watering, industrial service supply, hydropower generation, water contact recreation and canoeing and rafting, noncontact recreation, freshwater habitat (warm and cold), migratory habitat (warm and cold), spawning habitat (warm and cold), wildlife habitat, navigation

Page 5			SLWRI DEIS Comments by CDFW - Water Quality				
DFW-268 20	CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-34	1-8	Primary Study Area	The 15-mile reach of the Sacramento River from Keswick Dam downstream to Cottonwood Creek is impaired for unknown toxicity. It is no longer impaired by cadmium, copper, and zinc. The 16-mile reach of the Sacramento River from Cottonwood Creek to Red Bluff is impaired by mercury and unkonwn toxicity. See comment 17.
DFW-269 21	CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-34	9-16	Extended Study Area	The Sacramento River downstream from RBPP is impaired by DDT, dieldrin, mercury, PCBs, unknown toxicity, and chlordane. It is not impaired by diazinon.
DFW-270 22	CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-34,35	26-40,1-27	beneficial use description	This section is essentially duplicative of page 1-32 lines 5-31 and page 1-33 lines 1-4 but with more detail.
DFW-271 23	CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-34	28-29	The most recent edition, the fourth edition, was adopted in 1998 and amended in 2004.	"The most recent edition, the fourth edition, was adopted in 1998 and amended in 2011."
DFW-272 24	CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-35,36	32-40,1-2	Clean Water Act Section 401 Water Quality Certification	This section cites Clean Water Act which is federal law and is already mentioned at page 1-25 lines 14-27. The more appropriate citation for state law would be Porter-Cologne Act and Chapter 28 Certifications. Under subsection 3855, applications for water quality certificatinos shall be filed with the State Water Board Executive Director, who will forward copies to the appropriate Regional Water Board Executive Officer.
DFW-273 25	CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-36	3-8	Waste Discharge Permit	Under California law, waste discharge requirements (WDRs) are requried for some discharges in addition to those subject to NPDES permits. Discharges, such as those affecting groundwater or in a diffused manner (e.g., erosion from soil disturbance or waste discharges to land), must file a Report of Waste Discharge with the Regional Water Board in order to obtain WDRs. The Regional Water Board may waive filing of a Report of Waste Discharge but once a report is filed it must either waive or adopt WDRs.

26	DFW-274 CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-36	9-19	Industrial Storm Water General Permit. Storm Water Pollution Pervention Plan.	Since these are part of NPDES permits, they are better explained in the Federal section.

Page 6		SLWRI DEIS Comments by CDFW - Water Quality					
27	DFW-275 CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-37	3	Missing header	The paragraph starting on line 3 should have a header of "Water Right Decision 1275".
28	DFW-276 CDFW	Water Quality Technical Report Chapter 1 affected Environment	1	1-37	13	1995 Water Quality Control Plan	Explanation of the San Francisco Bay/Sacramento-San Joaquin Delta Estuary Water Quality Control Plan should revolve around the current 2006 version which incorporates D-1641 as part of the implementation plan. This section should also mention the current update process to revise flow criteria to improve water quality.

Attachment 7		Shasta Lake Water Resources Investigation DEIS Comment Form- CDFW August 2013					
Reviewer Name:		Mark Smelser				Geologic Technical Report Comments	
Reviewer Email:		Mark.Smelser@wildlife.ca.gov					
Reviewer Agency:		California Department of Fish and Wildlife					
Reviewer Mailing Address:		601 Locust St., Redding, CA 96001					
Date:		Aug 2013					
ITEM	REVIEWER	CHAPTER TITLE	CHAPTER NUMBER	PAGE NUMBER	LINE NUMBER	TEXT	COMMENT
1	DFW-277 CDFW	Geologic Technical Report	General	N/A	N/A		A geologist licensed in the State of California is not identified as being responsible for the preparation of the Geologic Technical Report. In particular, the Appendix that describes shoreline erosion. Both the report and appendix includes interpretations and opinions regarding slope stability, geologic hazards, and future erosion. Such interpretations and opinions fall under the professional responsibilities of a state licensed geologist or geotechnical engineer. Consequently, such an individual should be formally identified.
2	DFW-278 CDFW	Geologic Technical Report	General	1-9	18-26		The Geologic Technical Report erroneously attributes geologic data to Hackel (1966) when the true reference should be Irwin (1966, p. 23). The reliance on the 1966 reference and the use of outdated terms (e.g., Eastern Klamath Belt instead of Eastern Klamath Terrane) demonstrates that limited research was conducted in the preparation of the report. There has been a significant amount of geologic work conducted within the Klamath Mountains Geomorphic Province over the past several decades, which should be incorporated in this document. Please see USGS Open File Report 2003-306 (Irwin 2003) for an excellent bibliography on geologic research in the Klamath Mountains.
3	DFW-279 CDFW	Geologic Technical Report	General	1-19 to 1-20	39-40; 1-2		The Geologic Technical Report states that the nearest "active" fault to Shasta Dam is the Battle Creek fault zone and they use the term "active" as defined by the Alquist-Priolo Earthquake Fault Zoning Act (AP Act). Review of California's fault activity map (Jennings and Bryant 2010) shows the Battle Creek Fault zone as not exhibiting evidence of surface rupture within the last 11,000 years. Therefore, the Battle Creek fault is not an "active" fault as defined by the Act. The "active fault" declaration in the report again demonstrates limited research and a lack of oversight in the report preparation by a state licensed geologist. Moreover, to state that this fault zone is active and therefore imply the necessity for specific regulatory actions as defined in the AP Act could create undue concern in the inhabitants of the Red Bluff area.
4	DFW-280 CDFW	Geologic Technical Report	General	1-20	1-9		This discussion does not make sense, and additional clarification is required. Specifically, how does a 6.5 moment magnitude earthquake on the Battle Creek fault result in a 7.3 moment magnitude earthquake at Shasta Dam?
5	DFW-281 CDFW	Geologic Technical Report	General	1-22	19-24		The discussion of mass wasting etc. is important and comes up again in the shoreline erosion attachment. While Figure 1-4 and Tables 1-6 and 1-78 document the presence of the landslides and related features, the information provided does not allow for an evaluation of these features as potentially significant environmental impacts that may be triggered, or exacerbated by a higher lake level. More specifically, the first step in assessing whether or not such features represent a potentially significant environmental impact is to document the spatial relationship between these features and resources of value (i.e., natural environments or infrastructure). This does not appear to have been completed.
6	DFW-282 CDFW	Geologic Technical Report	General	1-26	1		Strictly speaking, the Alquist-Priolo Act does not show areas of faulting. The A-P Act requires that the State Geologist establish regulatory earthquake fault zones and those zones are depicted on maps known as Earthquake Fault Zones (after 1994) or Special Studies Zones (prior to 1994). The zones are plotted on standard USGS 1:24,000 scale 7.5-minute quadrangle maps, and individual maps are referenced by the name of the particular USGS 7.5 minute quadrangle map.

	Page 2		CDFW Comments on SLWRI DEIS - Geologic Report				
DFW-283							
7	CDFW	Geologic Technical Report	General	1-27	3-4	N/A	The Geologic Technical Report references a "Great Valley thrust fault system". Such a "system" is not formally documented within California's fault activity map (Jennings and Bryant 2010), but is recognized in the database of potential earthquakes (USGS OFR 96-705). This system is generally considered to be a zone of folds and "blind" thrust faults that while capable of slipping and causing seismic shaking are typically not associated with ground surface rupture. Therefore, a few additional clarifying statements should be included with this discussion of the Great Valley thrust fault system.
DFW-284							
8	CDFW	Geologic Technical Report	General	1-29	34-35	N/A	The Foothills fault system is not "active" (i.e., demonstrated surface displacement within the last 11,000 years). In order to avoid confusion, please use the term active only when referring to faults that are designated by the California Geological Survey (i.e., Alquist-Priolo Act) as having surface displacement within the Holocene (last 11,000 years). The term *potentially active* is used to define faults that exhibit evidence of surface displacement during the last two or three million years. Please review the Fault Activity Map of California (CGS, Geologic Data Map No. 6, 2010) for more on this.
DFW-285							
9	CDFW	Geologic Technical Report	General	1-45	3		Please define the term "droughty"
DFW-286							
10	CDFW	Geologic Technical Report-Appendix 1	General	N/A		Shoreline Erosion	This report should identify the professional individuals who are responsible for the preparation of this report.
DFW-287							
11	CDFW	Geologic Technical Report-Appendix 1	General			Shoreline Erosion	Montgomery, Sidle; references are missing
DFW-288							
12	CDFW	Geologic Technical Report-Appendix 1		2-5	31	Shoreline Erosion	There are awkward or incomplete sentence regarding impacts and soil productivity, please rewrite.
DFW-289							
13	CDFW	Geologic Technical Report-Appendix 1		2-5	32-33	Shoreline Erosion	This sentence is awkward and does not appear to make sense, please review. More importantly, "large landslides" destabilized by both mining and shoreline erosion represent a potentially significant impact. Sediment input into the lake is an obvious concern, but we need more information regarding whether or not reactivation of the landslides would adversely impact mines, roads, and other infrastructure elements. While Figure 1-4 of the main report shows the areas of mass wasting, the scale of that maps is too small to adequately show the spatial relationship between mass wasting and infrastructure which is necessary to best understand landsliding as a potential significant environmental impact.
DFW-290							
14	CDFW	Geologic Technical Report-Appendix 1		3-5	24-26	Shoreline Erosion	The historic shoreline erosion rate is stated to be approximately 90 cubic yards per acre per year. Using a few assumptions related to the stated dimensions of the measured sites, my rudimentary calculations reduce that figure down to roughly 0.7-inch per square foot of shoreline per year, and that value appears reasonable. Using the acres as the spatial unit is a bit confusing in that it does not appear that any of the measured sites were that large. Additionally, it is difficult to intuitively contemplate shorelines in terms of acres given that they are typically perceived as relatively narrow bands around the lake. Please consider using a more intuitively obvious set of units, and perhaps add a little bit more detail to the dimensions used in the areal volume calculations.

Attachment 7 Shasta Lake Water Resources Investigation DEIS Comments–CDFW–Version June 2013

Reviewer Name: Richard Lis, Brad Henderson
Reviewer Email: Richard.Lis@wildlife.ca.gov , Brad.Henderson@wildlife.ca.gov
Reviewer Agency: CA Dept. of Fish and Wildlife
Reviewer Mailing Address: 601 Locust St., Redding, CA 96001
Date: Sept 2013

Botanical Resources and Wetlands Technical Report Comments

ITEM	REVIEWER	CHAPTER TITLE	CHAPTER NUMBER	PAGE NUMBER	LINE NUMBER	TEXT	COMMENT
DFW-291							
1	CDFW	Botanical Resources and Wetlands Technical Report, Affected Environment	1	1-1		This area is referred to as the "impoundment area"	The total acreage of the 1,090-foot impoundment area (i.e., the new lake) should be provided here along with the total acreage of existing terrestrial areas proposed to be inundated (3,000 acres inundated and 3,338 acres of relocation areas?).
DFW-292							
2	CDFW	Botanical Resources and Wetlands Technical Report, Affected Environment	1	1-1		"relocation areas"	Total acreage of relocation areas should be provided here.
DFW-293							
3	CDFW	Botanical Resources and Wetlands Technical Report, Affected Environment	1	1-1		Subsequently, botany studies have been expanded into select areas.	Please identify number of acres. Identify what percentage of existing terrestrial areas was surveyed. Please identify why the entire area was not surveyed? Surveys should be comprehensive over the entire site, including areas that will be directly or indirectly impacted by the project. Refer to CDFW's protocols for vegetation and plant surveys (2009) and incorporate by reference.
DFW-294							
4	CDFW	Botanical Resources and Wetlands Technical Report, Affected Environment	1	1-7		Table 1-1	Impacts: MB 456.59, BBA 91.67, SA 719.61, MCA 435.32, SCA 242.49, Int A 527.54 Total 3000.76
DFW-295							
5	CDFW	"	1	1-8		Text including Barren and other types	This discussion and all following discussions for each land coverage/MCV type would be much more useful if the following information is included: 1. total acreage within the primary project area, 2. total acreage proposed to be altered or impacted via construction, inundation, etc. 3. Whether the plant community is considered to be sensitive by any state or federal agency (could be denoted in the tables as well).
DFW-296							
6	CDFW	"	1	1-24		Gray Pine	Include the scientific name the first time a species is mentioned in the body of the text.
DFW-297							
7	CDFW	"	1	1-27		Upper Sacramento River	Please identify if there is some definition for this portion of the project area – i.e., how far beyond the banks of the Sacramento River is the assessment area???
DFW-298							
8	CDFW	"	1	1-29		Sensitive natural communities may be of special concern to these agencies and conservation organizations for a variety of reasons.	The document should include vegetation communities declining on a statewide level considered special concern (S1-S3 rank). For example, guidance on assessing sensitive plant communities can be found at: http://www.dfg.ca.gov/biogeodata/vegcamp/natural_comm_background.asp
DFW-299							
9	CDFW	Botanical Resources and Wetlands Technical Report, Affected Environment	1	1-29		Figures 1-3a through 1-3j map the potential locations of sensitive plant communities along the Sacramento River.	What about sensitive plant communities in the impoundment area??? Why have they not been mentioned? The maps below show an excessive amount of detail for species locations completely outside of the Sacramento River. Life histories for many species depicted are completely unrelated to the River and to this project. Furthermore, The CNDDB is NOT a public dataset, and should not be included on maps that will be made public in reports and other documents. The "Data Use Guidelines" document outlines appropriate ways to put the CNDDB data on maps, and provides details on the symbology: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp.
DFW-300							
						Comment cont'd	These maps need to be substantially cleaned up to depict important resources within a narrowly defined area subject to project effects. This report should not depict tadpole shrimp locations for a project on the Sacramento River. The lack of detail for sensitive species occurrences within the impoundment area, where project impacts will be direct and substantial, is a major omission. Including so much unrelated information is a distraction. Focus on the real issues and the impacts.
DFW-301							
10	CDFW	Botanical Resources and Wetlands Technical Report, Affected Environment	1	1-30		Locator Map	Please state why off-site animal occurrences being mapped in a plant report.
DFW-302							
11	CDFW	Botanical Resources and Wetlands Technical Report, Affected Environment	1	1-51		These habitat types are tracked in the CNDDB.	This is not necessarily true. Please read the following link which provides more accurate information regarding jurisdictional determinations and rare natural communities: http://www.dfg.ca.gov/biogeodata/vegcamp/natural_comm_background.asp

Page 2		SLWRI DEIS Comment Form--CDFW--Botanical Resources and Wetlands Technical Report					
DFW-303	12 CDFW	Botanical Resources and Wetlands Technical Report, Affected Environment	1	1-72	22 et ff.	In 2004, botanical surveys were conducted	What about sensitive plant communities in the impoundment area??? Why have they not been mentioned? The maps below show an excessive amount of detail for species locations completely outside of the Sacramento River. Life histories for many species depicted are completely unrelated to the River and to this project. Furthermore, The CNDDB is NOT a public dataset, and should not be included on maps that will be made public in reports and other documents. The "Data Use Guidelines" document outlines appropriate ways to put the CNDDB data on maps, and provides details on the symbology. http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp. These maps need to be substantially cleaned up to depict important resources within a narrowly defined area subject to project effects. This report should not depict tadpole shrimp locations for a project on the Sacramento River.
DFW-304	13 CDFW	Botanical Resources and Wetlands Technical Report, Affected Environment	1	1-72	35 et ff.	Based upon previous surveys resulting in....	Specific survey reports are mentioned for surveys conducted in 2009 and 2010 on Neviusa cliftonii and Vaccinium sp., however, these reports are not cited and appear to be unavailable and, these survey reports are cited here as reference to Vaccinium sp., but not discussed above in reference to Neviusa cliftonii. These reports and data sets from these reports must be made available and summaries of these reports should be added to the EIR/EIS to validate claims and assertions based upon them.
DFW-305	14 B. Henderson	"	1	1-72		NSR conducted several botanical survey	Please identify how many total acres have been surveyed to date and what percentage of the direct impact area this represents.
DFW-306	15 CDFW	"	1	1-72		Special-status plant species detected during the surveys...in Attachment 3.	Why are they not discussed here? Sensitive plants detected within the proposed inundation area will suffer a direct loss and should be a primary focus of this report. To put different effects analyses and discussion in different documents makes a complete review of the effects difficult to do.
DFW-307	16 CDFW	"	1	1-72		Based on previous surveys....	This sentence does not make sense --what is meant by "based on"?
DFW-308	17 CDFW	Botanical Resources and Wetlands Technical Report, Affected Environment	1	1-72		...these species outside of the proposed project area...	Please identify why surveys were conducted outside the project area? Why not inside the project area? This discussion should start with whether these species are known from the project area and whether would they be impacted. Secondly, this section should state whether in the opinion of NSR the project area supports potential habitat. The off-site survey and genetic analysis should come later.
DFW-309	18 CDFW	Botanical Resources and Wetlands Technical Report, Affected Environment	1	1-73		In 2010, botanical surveys were conducted in all relocation areas...	Please identify what species were observed during these surveys.
DFW-310	19 CDFW	Botanical Resources and Wetlands Technical Report, Affected Environment	1	1-74	14 et ff.	Shasta snow-wreath is currently known from 23 locations	Discussion of Neviusa cliftonii in this section should include discussion of the fact that it is likely that the current distribution of populations of N. cliftonii is some reduced fraction of the original population distribution that existed prior to the completion of Shasta Dam and the filling of Shasta Lake. (Although this is briefly mentioned in the Cumulative Effects section of the Draft EIS, p. 12-171, where the brevity may be appropriate, it needs to be more thoroughly discussed in the sections discussing the species and remnant populations as they exist today.) The filling of Shasta Lake very likely exterminated many populations of N. cliftonii. Of significance is that most of the 23 extant populations occur near the periphery of Shasta Lake, suggesting that its distribution was not historically at much higher elevations and that the remaining populations have may be near some environment limits that are reflected in the observed elevational limits. Discussion of these issues should be included in the affected environment as they are important for assessing levels of significant deleterious effects and for evaluation of any proposed mitigation measures.
DFW-311	20 CDFW	"	1	1-74		Shasta snow-wreath is currently known from 23 locations	Please clarify if these were previously known or were identified during project-related surveys.
DFW-312	21 CDFW	Botanical Resources and Wetlands Technical Report, Affected Environment	1	1-74		Of these, 13 Shasta snow-wreath populations were discovered	Please identify who conducted the surveys.
DFW-313	22 CDFW	Botanical Resources and Wetlands Technical Report, Affected Environment	1	1-100		Acreage totals for relocation areas will be provided in the FEIS.	It would be useful to provide an acreage figure for the impoundment and relocation areas outside of the existing lake here. Again, it would differentiate between areas of permanent loss versus temporary impacts to the existing Shasta Lake.
DFW-314	23 CDFW	"	1	1-100		The National List of Plant Species That Occur in Wetlands: California Region 0.	This reference was updated in 2012.
DFW-315	24 CDFW	"	1	1-112		Fish and Game Code authorizes DFG to accept a Federal biological opinion...both the ESA and the CESA.	This can be done only IF the federal BO is consistent with the provisions of CESA.

Page 3		SLWRI DEIS Comment Form--CDFW--Botanical Resources and Wetlands Technical Report					
DFW-316	25 CDFW	"	1	1-112		Project impact on these species are not considered significant.	Reword as "impacts to these species are considered significant."
DFW-317	26 CDFW	"	1	1-112		Paragraph, California Department of Fish and Game Designations	Much of the discussion in this paragraph is incorrect. For example, plants are not included. Refer here for the correct information: http://www.dfg.ca.gov/wildlife/nongame/ssc/
DFW-318	27 CDFW	"	2	2-1		Attachment 2, "List of Plant Species Observed in the Shasta Lake and Vicinity Portion of the Primary Study Area"	Move attachment 2 to the body of the text.

Responses to Comments from Department of Fish and Wildlife

DFW-1: Comment noted.

DFW-2: Please refer to Master Comment Response GEN-1, "Comment Included as Part of the Record."

DFW-3: Please refer to Master Comment Response ALTD-2, "Alternatives Development – Anadromous Fish Survival"; Master Comment Response COST/BEN-1, "Intent of EIS and Process to Determine Federal Interest"; Master Comment Response DSFISH-3, "Fish Habitat Restoration"; and Master Comment Response DSFISH-5, "Fish and Wildlife Coordination Act Report."

DFW-4: Please refer to Master Comment Response WSR-1, "Water Supply Demands, Supplies, and Project Benefits."

DFW-5: Please refer to Master Comment Response DSFISH-5, "Fish and Wildlife Coordination Act Report," and Master Comment Response DSFISH-8, "National Marine Fisheries Service Recovery Plan, Anadromous Fish Restoration Program, Doubling Goals and Biological Opinions."

DFW-6: Please refer to Master Comment Response P&N-1, "Purpose and Need and Objectives," and Master Comment Response ALTD-2, "Alternative Development – Anadromous Fish Survival."

DFW-7: Please refer to Master Comment Response COST/BEN-1, "Intent of EIS and Process to Determine Federal Interest."

DFW-8: As described in the EIS, all action alternatives would generally result in improved flow and water temperature conditions for Chinook salmon in the upper Sacramento River downstream from Shasta Dam. Effects to Chinook salmon, including beneficial effects, are discussed in EIS Chapter 11, "Fisheries and Aquatic Ecosystems," Section 11.3.3, "Direct and Indirect Effects." This would benefit anadromous fish survival in the upper Sacramento River. Potential benefits of SLWRI action alternatives are described in EIS Chapter 2, "Alternatives," Section 2.3, "Action Alternatives," and Section 2.5, "Summary of Potential Benefits of Action Alternatives."

DFW-9: All DEIS action alternatives would benefit both anadromous fish survival and water supply reliability. Chapter 2 "Alternatives," Section 2.3 "Action Alternatives," describes estimated benefits for both primary and secondary objectives under the SLWRI action alternatives. A detailed evaluation of direct and indirect effects to fisheries, including beneficial effects to anadromous fish, is outlined in Chapter 11 "Fisheries and Aquatic Ecosystems," Section in 11.3.3 "Direct and Indirect Effects," which shows that all action alternatives would result in improved water temperatures, as well as reliable flows in dry and critical water years, and thus provide overall benefits for fish in the upper Sacramento River. As described in Chapter 6 "Hydrology, Hydraulics, and Water Management," Section 6.3.3 "Direct and Indirect Effects," all action alternatives would result in increased CVP and SWP deliveries, thus increasing water supply reliability.

Please refer to Master Comment Response WSR-1, "Water Supply Demands, Supplies, and Project Benefits"; Master Comment Response WSR-12 "Increasing Water Supply Reliability under Action Alternatives"; Master Comment Response ALTD-2, "Alternative Development – Anadromous Fish Survival"; Master Comment Response DSFISH-3, "Fish Habitat Restoration"; Master Comment Response DSFISH-5, "Fish and Wildlife Coordination Act Report"; and Master Comment Response DSFISH-8, "National Marine Fisheries Service

Recovery Plan, Anadromous Fish Restoration Program, Doubling Goals and Biological Opinions."

DFW-10: The SLWRI has two primary coequal objectives that must be met, and neither must impede or harm the other objective. While the SLWRI is not the only way to improve anadromous fish survival, the most efficient way to meet both primary objectives is to enlarge Shasta Reservoir. The existing Shasta Reservoir cannot be reoperated to benefit anadromous fisheries without impacting water supply reliability.

Please refer to Master Comment Response P&N-1, "Purpose and Need and Objectives"; Master Comment Response ALTD-2, "Alternative Development – Anadromous Fish Survival"; Master Comment Response DSFISH-3, "Fish Habitat Restoration"; Master Comment Response DSFISH-5, "Fish and Wildlife Coordination Act Report"; Master Comment Response DSFISH-8, "National Marine Fisheries Service Recovery Plan, Anadromous Fish Restoration Program, Doubling Goals and Biological Opinions"; and Master Comment Response NEPA-2, "Cumulative Impacts."

DFW-11: The SLWRI has two primary coequal objectives that must be met, and neither must impede or harm the other objective. The existing Shasta Reservoir cannot be reoperated to benefit anadromous fisheries without impacting water supply reliability or vice versa.

Please refer to Master Comment Response ALTD-1, "Alternative Development – Water Supply Reliability."

DFW-12: The SLWRI has two primary coequal objectives that must be met, and neither must impede or harm the other objective. While the SLWRI is not the only way to improve anadromous fish survival, the most efficient way to meet both primary objectives is to enlarge Shasta Reservoir. The existing Shasta Reservoir cannot be reoperated to benefit anadromous fisheries without impacting water supply reliability.

Please refer to Master Comment Response ALTD-1, "Alternative Development- Water Supply Reliability"; Master Comment Response ALTD-2, "Alternative Development – Anadromous Fish Survival"; Master Comment Response DSFISH-8, "National Marine Fisheries Service Recovery Plan, Anadromous Fish Restoration Program, Doubling Goals and Biological Opinions"; and Master Comment Response DSFISH-3, "Fish Habitat Restoration."

DFW-13: Please refer to Master Comment Response ALTD-2, "Alternative Development – Anadromous Fish Survival," and Master Comment Response DSFISH-8, "National Marine Fisheries Service

Recovery Plan, Anadromous Fish Restoration Program, Doubling Goals and Biological Opinions."

DFW-14: The SLWRI has two primary coequal objectives that must be met, and neither must impede or harm the other objective. While the SLWRI is not the only way to improve anadromous fish survival, the most efficient way to meet both primary objectives is to enlarge Shasta Reservoir. Shasta Dam and Reservoir are currently operated to meet existing regulations, including the 2008 and 2009 BOs. The existing Shasta Dam and Reservoir cannot be reoperated to benefit anadromous fisheries without impacting water supply reliability.

Please refer to Master Comment Response ALTD-2, "Alternative Development – Anadromous Fish Survival."

DFW-15: It is unclear whether the commenter is referring to the 2008 USFWS Coordination Act Report which was attached to the DEIS. For information related to the Coordination Act Report, please see Master Comment Response DSFISH-5, "Fish and Wildlife Coordination Act Report."

Please refer to Master Comment Response ALTR-1, "Range of Alternatives General"; Master Comment Response ALTS-1, "Alternative Selection"; and Master Comment Response DSFISH-5, "Fish and Wildlife Coordination Act Report."

DFW-16: While some sensitivity analyses were conducted in 2008 with SALMOD using a modified TCD placement on Shasta Dam, it was also made clear to USFWS and CDFW at the July 31, 2008 meeting that the modifications were theoretical at best, and were not to be considered based on reality until engineers could identify a valid structural modification of the TCD. This option did not provide the overall benefits to both primary and secondary goals that the action alternatives provided, and was not moved forward under the revised alternatives established with the 2008 and 2009 BO operational RPA requirements.

DFW-17: While some sensitivity analyses were conducted in 2008 with SALMOD using a modified TCD placement on Shasta Dam, it was also made clear to USFWS and CDFW at the July 31, 2008 meeting that the modifications were theoretical at best, and were not to be considered based on reality until engineers could identify a valid structural modification of the TCD. This option did not provide the overall benefits to both primary and secondary goals that the action alternatives provided, and was not moved forward under the revised alternatives established with the 2008 and 2009 BO operational RPA requirements.

DFW-18: While some sensitivity analyses were conducted in 2008 with SALMOD using a modified TCD placement on Shasta Dam, it was also made clear to USFWS and CDFW at the July 31, 2008 meeting that the modifications were theoretical at best, and were not to be considered based on reality until engineers could identify a valid structural modification of the TCD. This option did not provide the overall benefits to both primary and secondary goals that the action alternatives provided, and was not moved forward under the revised alternatives established with the 2008 and 2009 BO operational RPA requirements.

DFW-19: The SLWRI has two primary coequal objectives that must be met, and neither must impede or harm the other objective. While the SLWRI is not the only way to improve anadromous fish survival, the most efficient way to meet both primary objectives is to enlarge Shasta Reservoir. The existing Shasta Reservoir cannot be reoperated to benefit anadromous fisheries without impacting water supply reliability.

Please refer to Master Comment Response ALTD-2, "Alternative Development – Anadromous Fish Survival," and Master Comment Response ALTR-1, "Range of Alternatives – General."

DFW-20: Please refer to Master Comment Response FISHPASS-1, "Fish Passage Above Shasta Dam."

DFW-21: Chapter 2 "Alternatives," Section 2.4, "Alternatives Considered and Eliminated from Further Analysis," describes alternatives considered but eliminated from further development and consideration during formulation of initial alternatives and comprehensive plans. Acreages of impacts for relocation areas used conservative estimates in the DEIS based on preliminary engineering and planning information. The precise footprint of buildings, campgrounds, etc. within the relocation areas was uncertain; therefore a larger footprint area was identified. Currently, the footprint of these areas has been updated to reflect a "maximum area of impact" and a "likely area of impact." Mitigation for compensation will be calculated based on the "likely area of impact."

Please refer to Master Comment Response CMS-1, "EIS Mitigation Plan."

DFW-22: Efforts were made to simplify the document as much as feasible while meeting the needs to disclose environmental effects to the extent required to meet current legal requirements for full disclosure, including documenting the absence of significant effects on sensitive resources. To allow the document to be searched quickly, the DEIS is available in electronic format. It also includes a table of contents and

index to allow the reader to find certain chapters or specific information in the DEIS.

Please refer to Master Comment Response ALTR-1, "Range of Alternatives – General," and Master Comment Response ALTS-1, "Alternative Selection."

DFW-23: The SLWRI EIS is written in plain language. Efforts were made to simplify the document as much as feasible while meeting the needs to disclose environmental effects to the extent required to meet current legal requirements for full disclosure, including documenting the absence of significant effects on sensitive resources. The document includes a table of contents and index as well as being available in electronic format to makes searches of the entire document quick and easy.

Please refer to Master Comment Response CEQA-1, "CEQA Compliance."

DFW-24: Please refer to Master Comment Response CEQA-1, "CEQA Compliance."

DFW-25: Please refer to Master Comment Response ALTS-1, "Alternative Selection."

DFW-26: Please refer to Master Comment Response ESA-1, "Compliance with the Endangered Species Act."

DFW-27: The DEIS provides quantitative information on relative impacts across all the alternatives. This information was presented in tabular formation whenever possible. The commenter does not provide a specific reference to respond to in terms of what impact acreage was not provided.

Please refer to Master Comment Response NEPA-2, "Cumulative Impacts," and Master Comment Response EI-1, "Intent of NEPA Process to Provide Fair and Full Discussion of Significant Environmental Impacts."

DFW-28: Please refer to Master Comment Response CEQA-2, "CEQA Mitigation," And Master Comment Response CMS-1, "EIS Mitigation Plan."

DFW-29: Please refer to Master Comment Response CEQA-2, "CEQA Mitigation," And Master Comment Response CMS-1, "EIS Mitigation Plan."

DFW-30: Please refer to Master Comment Response DSFISH-3, "Fish Habitat Restoration," and Master Comment Response DSFISH-5, "Fish and Wildlife Coordination Act Report."

DFW-31: With regards to responding to the comment letter submitted for the Draft Feasibility Report, there have been previous review and comment opportunities on documents related to the SLWRI. At this time we are responding to questions submitted specifically for the public DEIS. Many modifications to the SLWRI have been made pursuant to previous reviews of the various documents related to the project formulation process and Reclamation is not required as part of the NEPA process to review all previous comments on project related documents.

DFW-32: Please refer to Master Comment Response DSFISH-2, "Other Fisheries Models and Tools."

DFW-33: SALMOD is not a restoration program, rather a tool. It is unclear if the commenter is referring to the SALMOD output or the SALMOD input values. However, SALMOD is not being used as a population model in the context of SLWRI, but is being used to compare the effects of each alternative on fish survival between Keswick Dam and RBPP under the conditions that would occur each year when Shasta is operated under each action alternative scenario. The starting number of adult spawning Chinook salmon (each run) input into SALMOD was based on 2 scenarios: (1) the 1999-2006 average population of each run calculated from the Grand Tab Table (http://www.calfish.org/LinkClick.aspx?fileticket=wXbihOvQ7JU%3d&tabid=213&mid=524), and (2) the AFRP Sacramento River doubling goals, per the request of the USFWS and CDFW during SLWRI fisheries technical team meetings. These AFRP targets are for the river between the confluence with the Feather River and Keswick Dam, therefore the number of adult spawners were adjusted for our analysis to cover Keswick Dam down to RBPP. The numbers in our analysis may be readjusted for the ESA Section 7 consultation. The AFRP goals are based on naturally spawning fish, not hatchery fish. The text within Chapter 11, "Fisheries and Aquatic Resources," explaining the AFRP goals defined natural production to be that portion of production not produced in hatcheries, and defined total production to be the sum total of harvest and escapement. The production goals include adult fish removed from the system due to both sport and commercial fishing in both freshwater and marine environments.

Please refer to Master Comment Response DSFISH-1, "SALMOD Model for Sacramento River Chinook Salmon."

DFW-34: The project is primarily intended to improve Chinook salmon survival in critical and dry years, particularly in a drought condition, when they are likely to be most at risk of significant population declines or even extinction. While overall benefits to production when all water year types are combined are insignificant, benefits in dry and critical years are significant. With the added risks of climate change, the benefit of an increased source of cold water adds to the reliability of suitable habitat available for Chinook salmon and other listed fish in the Sacramento River. Adding to that, the habitat restoration components provides an additional amount of available habitat necessary to improve conditions that can help increase the number of Chinook salmon and other listed fish in the Sacramento River.

While the juvenile to adult return rates for all runs but winter-run Chinook salmon in the Sacramento River are unknown, the increase in juvenile production during critical and dry water years would increase the likelihood of increased adult returns. This shows a significant benefit of the project because these are the years in which the Chinook salmon populations, as well as steelhead, are at the greatest risk, as described by NMFS in their Draft Recovery Plan (2009) and in their Final Recovery Plan (2014).

Please refer to Master Comment Response DSFISH-2, "Other Fisheries Models and Tools," and Master Comment Response DSFISH-8, "National Marine Fisheries Service Recovery Plan, Anadromous Fish Restoration Program, Doubling Goals and Biological Opinions."

DFW-35: The methods used for the NEPA analysis used the best tools available. If required through the ESA consultation, additional tools will be considered.

Please refer to Master Comment Response DSFISH-2, "Other Fisheries Models and Tools."

DFW-36: A detailed discussion on management of the cold-water pool for anadromous fish is presented in Chapter 2, "Alternatives," Section 2.3.6, "Operations and Maintenance for CP4 and CP4A." It is explained that Reclamation would work cooperatively with the Sacramento River Temperature Task Group (SRTTG), of which CDFW is a participant, to determine the best use of the cold-water pool each year under an adaptive cold water management plan. Reclamation would manage the cold-water pool and operate Shasta Dam each year based on recommendations from the SRTTG. Because adaptive management is predicated on using best available science and new information to make decisions, a monitoring program would be implemented as part of the adaptive management plan. SRTTG members would conduct

monitoring, develop monitoring protocols, and set performance standards to determine the success of adaptive management actions.

DFW-37: The commenter is mistaken in that no potentially significant impacts were identified to fish based on Old and Middle River reverse flows, however the DEIS did disclosed minor increases in entrainment levels to Delta fish. However, due to the low population levels, Reclamation felt that even a less than 1 percent increase in entrainment could be considered a significant impact to the overall population, even if that entrainment level is below the Take Limits established by the USFWS and NMFS in their respective BOS. As specified in the DEIS, no mitigation could be proposed because these levels of entrainment are still below the levels designated by USFWS and NMFS for the Take Limits defined in the BOs, and as such, the SLWRI would remain in compliance with all regulations and requirements established under the Endangered Species Act.

DFW-38: Please refer to Master Comment Response DSFISH-9, "Flow-Related Effects on Fish Species of Concern."

DFW-39: Comment noted. The EIS was revised to enhance the discussion of biological resources, impacts to biological resources, and mitigation measures for impacted biological resources. CP4, CP4A and CP5 are alternatives that includes actions to restore ecological processes in the Sacramento River (i.e., augmenting spawning gravel), but these actions are not mitigation measures for CVPIA or for the SLWRI project. CP4, CP4A and CP5 would further enhance spawning gravels in addition to the mitigation actions that have been and are being completed for CVPIA.

Please refer to Master Comment Response CMS-1, "EIS Mitigation Plan."

DFW-40: Chapter 3, "Considerations for Describing Affected Environment and Environmental Consequences," of the EIS provides a discussion of those programs and projects that are considered for cumulative effects, including those described by the commenter. SALMOD was not used to evaluate the effects of these past present and foreseeable programs and projects. The EIS does evaluate the downstream effects of reservoir storage and discharge on both the Sacramento River above and below Red Bluff and the Delta in Chapter 11, "Fisheries and Aquatic Ecosystems," Chapter 7, "Water Quality," Chapter 8, "Botany Resources and Wetlands," and Chapter 13, "Wildlife Resources."

Please refer to Master Comment Response BDCP-1, "Relationship of the SLWRI to the Bay Delta Conservation Plan," Master Comment

Response FISHPASS-1, "Fish Passage Above Shasta Dam," and Master Comment Response NEPA-2, "Cumulative Impacts."

DFW-41: Please refer to Master Comment Response CEQA-1, "CEQA Compliance"; Master Comment Response CEQA-2, "CEQA Mitigation"; and Master Comment Response CMS-1, "EIS Mitigation Plan."

DFW-42: Effects analyses for anadromous fish were conducted for the upper Sacramento River, the lower Sacramento River and tributaries, the Trinity River, and the Delta. Multiple environmental and population level variables were used to assess potential effects to anadromous fish from project implementation. A full description of the variables and methodologies used for the analysis of effects to anadromous fish can be found in Chapter 11, "Fisheries and Aquatic Ecosystems." The Significance criteria used for the anadromous fish effects analysis are based on the checklist presented in Appendix G of the State CEQA Guidelines; factual or scientific information and data; and regulatory standards of Federal, State, and local agencies. These thresholds also encompass the factors taken into account under NEPA to determine the significance of an action in terms of the context and the intensity of its effects. A full discussion of significance criteria development can be found in Chapter 11, "Fisheries and Aquatic Ecosystems," Section 11.3.2, "Criteria for Determining Significance of Effects."

NEPA requires that agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements. They shall identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement. Reclamation, through the scoping process and discussions with agencies (including CDWF) and stakeholders, has performed information gathering and focused studies to document resource conditions and evaluate the potential impacts of the range of alternatives developed through the SLWRI feasibility study. The tools used to evaluate impacts of the alternatives were selected based upon Reclamations standard practices and input from agencies and subject matter experts.

This comment will be included as part of the record and made available to decision makers before a final decision on the proposed project.

Please refer to Master Comment Response EI-1, "Intent of NEPA Process to Provide Fair and Full Discussion of Significant Environmental Impacts"; Master Comment Response ALTR-1, "Range of Alternatives General"; Master Comment Response ESA-1, "Compliance with the Endangered Species Act"; and Master Comment

Response COST/BEN-1, “Intent of EIS and Process to Determine Federal Interest.”

DFW-43: The Final EIS was revised to enhance the discussion of resources and mitigation measures in Chapter 11, “Fisheries and Aquatic Ecosystems”; Chapter 12, “Botanical Resources and Wetlands”; and Chapter 13, “Wildlife Resources.” The Final EIS will provide an enhanced discussion of project impacts and mitigation actions with a level of specificity and detail consistent with Reclamation's planning process.

Please refer to Master Comment Response CMS-1, “EIS Mitigation Plan.”

DFW-44: Where surveys for special status species have not been completed to meet established protocols, Reclamation's approach is to assume presence of these species within areas of potential habitat. The EIS was revised to include an enhanced discussion of environmental commitments in Chapter 2, “Alternatives,” a number of resource chapters have been revised and enhanced with respect to affected environment, impact analysis, and mitigation measure sections based on additional studies, investigations and analysis.

Please refer to Master Comment Response CMS-1, “EIS Mitigation Plan.”

DFW-45: Where surveys for special status species have not been completed to meet established protocols, Reclamation's approach is to assume presence of these species within areas of potential habitat. The EIS was revised to include an enhanced discussion of environmental commitments in Chapter 2, “Alternatives,” a number of resource chapters have been revised and enhanced with respect to affected environment, impact analysis, and mitigation measure sections based on additional studies, investigations and analysis.

Please refer to Master Comment Response CMS-1, “EIS Mitigation Plan.”

DFW-46: Subsequent to publication of the DEIS, additional investigations were performed specific to these species. The EIS has been revised to incorporate best available science. Impact Wild-1, “Take and Loss of Habitat for the Shasta Salamander,” in Chapter 13, “Wildlife Resources,” addresses impacts to Shasta Salamander. Impact Bot-3, “Loss of USFS Sensitive, BLM Sensitive, or CRPR Species,” in Chapter 12, “Botanical Resources and Wetlands,” addresses impacts to Shasta snow-wreath. In the EIS, mitigation measures were enhanced to reduce impacts to Shasta salamander and Shasta snow-wreath, however

the EIS acknowledges that impacts to these species remains significant, even with mitigation.

DFW-47: A number of chapters of the EIS have been revised to address a wide array of comments similar to those described by CDFW.

DFW-48: NEPA requires that the lead agency--in this case, Reclamation--determine and disclose the impacts of an action. While the McCloud River is protected under state statute, is not clear how the referenced statute supports the commenters claim that Reclamation should request an effects determination from the California Natural Resources Agency.

Please refer to Master Comment Response WASR-6, "Protections of the Lower McCloud River as Identified in the California Public Resources Code, Section 5093.542."

DFW-49: There have been previous review and comment opportunities on documents related to the SLWRI. At this time we are responding to questions submitted specifically for the public DEIS. Many modifications to the SLWRI have been made pursuant to previous reviews of the various documents related to the project formulation process and Reclamation is not required as part of the NEPA process to review all previous comments on project related documents.

DFW-50: Reclamation has gathered information and performed focused studies to document resource conditions and evaluate the potential impacts of the range of alternatives developed through the SLWRI feasibility study. The methods used to evaluate the impacts of the alternatives were based upon Reclamation's standard practices and input from agencies and subject matter experts. A response is not required under NEPA because the comment does not raise a significant environmental issue (NEPA Regulation 40 CFR Part 1503.4). This comment will, however, be included as a part of the record and made available to decision makers before a final decision on the proposed project.

Please refer to Master Comment Response WQ-1, "Remediation of Abandoned Mines in the Shasta Lake Area."

DFW-51: This EIS does not evaluate the effects of channel incision and bank erosion that may have occurred historically as a result of construction of Shasta Dam, in the main channel and tributaries. The evaluation conducted for this EIS considers the action alternatives in comparison to the No Action Alternative. Under the No-Action Alternative, Shasta Dam operations would not change. Under the action alternatives, operational changes would be minimal, such that the

probability of exceedance of flows being exceeded on the Sacramento River during a given year is nearly indistinguishable from curves under the No-Action Alternative. Chapter 4, "Geology, Geomorphology, Minerals, and Soils," Section 4.3.4 presents the probability of exceedance curves to demonstrate that minimal changes in energy associated with the difference in flows between the No-Action Alternative and the action alternatives would limit any significant additional channel incision or bank erosion in tributary streams below Keswick Dam. Because it is not anticipated that fluvial geomorphology or downstream tributary fluvial geomorphology would be altered, no mitigation measures is necessary. However, mitigation measure Geo-9 was developed to implement coordination on an annual basis with relevant river management and habitat restoration efforts between Keswick Dam and Red Bluff, including but not limited to the members of the Sacramento River Temperature Task Group. The purpose of this coordination will be to discuss how releases from Shasta and Keswick Dams could be managed to best enhance downstream objectives, such as ramping rates or temperature targets, that are consistent with the CVP's capabilities and primary operating objectives.

DFW-52: Please refer to Master Comment Response GEN-1, "Comment Included as Part of the Record."

DFW-53: The DEIS identifies and evaluates six comprehensive plans (CP) that have been developed to meet the project purpose and need and objectives, analyzes the potential environmental effects, and identifies measures to reduce or avoid potential environmental effects resulting from the action alternatives (i.e., mitigation measures).

Please refer to Master Comment Response ALTS-1, "Alternative Selection."

DFW-54: Information related to the status of existing resources is presented in Chapters 4 through 25 of the DEIS. The Executive Summary does not include all of the background information found in the individual resource chapters.

DFW-55: Please refer to Master Comment Response ALTS-1, "Alternative Selection," and Master Comment Response CEQA-1, "CEQA Compliance."

DFW-56: The Summary is not meant for detailed descriptions of these issues. Specific needs, habitat descriptions, management and regulatory requirements and actions, and fisheries impacts and benefits are further described in Chapter 11, "Fisheries and Aquatic Ecosystems."

DFW-57: The Summary is not meant for detailed descriptions of these issues. Specific needs, habitat descriptions, management and regulatory requirements and actions, and fisheries impacts and benefits are further described in Chapter 11 "Fisheries and Aquatic Ecosystems." Additionally, the SLWRI has two primary coequal objectives that must be met, and neither must impede or harm the other objective. While the SLWRI is not the only way to improve anadromous fish survival, the most efficient way to meet both primary objectives is to enlarge Shasta Reservoir. The existing Shasta Reservoir cannot be reoperated to benefit anadromous fisheries without impacting water supply reliability.

Please refer to Master Comment Response ALTD-1, "Alternative Development – Water Supply Reliability," and Master Comment Response ALTD-2, "Alternative Development – Anadromous Fish Survival."

DFW-58: The Executive Summary is not meant for detailed descriptions of these issues. Specific needs, habitat descriptions, management and regulatory requirements and actions, and fisheries impacts and benefits are further described in Chapter 11, "Fisheries and Aquatic Ecosystems."

DFW-59: The Executive Summary is not meant for detailed descriptions of these issues. Specific needs, habitat descriptions, management and regulatory requirements and actions, and fisheries impacts and benefits are further described in Chapter 11, "Fisheries and Aquatic Ecosystems."

DFW-60: The SLWRI has two primary coequal objectives that must be met, and neither must impede or harm the other objective. While the SLWRI is not the only way to improve anadromous fish survival, the best way and most efficient way to meet both primary objectives is to implement the SLWRI. The existing Shasta Reservoir cannot be reoperated to benefit anadromous fisheries without impacting water supply reliability.

Please refer to Master Comment Response ALTD-2, "Alternative Development- Anadromous Fish Survival"; Master Comment Response P&N-1, "Purpose and Need and Objectives"; and Master Comment Response GEN-2, "Unsubstantiated Information."

DFW-61: Please refer to Master Comment Response RAH-2, "Reservoir Surface Area with Reservoir Enlargement."

DFW-62: Please refer to Master Comment Response RAH-2, "Reservoir Surface Area with Reservoir Enlargement."

DFW-63: Please refer to Master Comment Response RAH-2, "Reservoir Surface Area with Reservoir Enlargement."

DFW-64: Please refer to Master Comment Response RAH-2, "Reservoir Surface Area with Reservoir Enlargement."

DFW-65: Please refer to Master Comment Response RAH-2, "Reservoir Surface Area with Reservoir Enlargement."

DFW-66: Please refer to Master Comment Response RAH-2, "Reservoir Surface Area with Reservoir Enlargement."

DFW-67: The Summary Chapter is not meant for detailed information, but a summary of the findings. For detailed information, refer to Chapter 6, "Hydrology, Hydraulics, and Water Management," Section 6.3.3, "Direct and Indirect Effects."

DFW-68: Chapter 7, "Water Quality," and the associated Water Quality Technical Report provide a comprehensive discussion of the nature and location of historic mining activities and existing features as they relate to heavy metals and other water quality constituents. Under the No-Action Alternative, the existing mine drainage issues will continue consistent with abatement efforts of land owners and managers. With the exception of an isolated area near the Bully Hill mine complex, there are no abandoned or active mines that would be subject to inundation or disturbance if the SLWRI project is authorized.

The discussion of fisheries impacts in Chapter 11, "Fisheries and Aquatic Ecosystems," referenced by the commenter is specific to impacts to cold water habitat. Discussion of water quality impacts on beneficial uses (e.g., cold water habitat) is provided in Chapter 7, "Water Quality," specifically impacts WQ-3 and WQ-6.

Please refer to Master Comment Response WQ-1, "Remediation of Abandoned Mines in the Shasta Lake Area."

DFW-69: Mitigation measures were enhanced in the Final EIS.

DFW-70: Please refer to Master Comment Response CEQA-1, "CEQA Compliance."

DFW-71: The purpose of the Executive Summary is to summarize the contents of the Final EIS. The Executive Summary does not provide the level of detail and analysis that is included in the body of the EIS. The Impact Analysis and Mitigation Measures are discussed in Chapter 11, "Fisheries and Aquatic Ecosystems," of the Final EIS. The impact call for Impact Aqua-7: Effects on Spawning and Rearing Habitat of

Adfluvial Salmonids in Low-Gradient Tributaries to Shasta Lake was changed and mitigation for this impact was revised in the Final EIS.

DFW-72: There are no ESA or CESA listed plants in that portion of the primary study area that would be impacted. The impact statement is specific to ESA and CESA to facilitate any consultation requirements. Please refer to Impact Bot-3 in the Executive Summary, which specifically addresses sensitive plants, including rare plants.

Please refer to Master Comment Response CEQA-1, "CEQA Compliance."

DFW-73: The purpose of the Executive Summary is to summarize the contents of the EIS. The Executive Summary does not provide the level of detail and analysis that is included in the body of the EIS. The impacts were quantified and updated in Chapter 12, "Botanical Resources and Wetlands," and Chapter 13, "Wildlife Resources," of the EIS.

DFW-74: The purpose of the Executive Summary is to summarize the contents of the EIS. The Executive Summary does not provide the level of detail and analysis that is included in the body of the EIS. The impacts were quantified and updated in Chapter 13, "Wildlife Resources," of the EIS.

DFW-75: The text about which the commenter refers is a discussion of background and project need. There is no claim in the DEIS that the NMFS Recovery Plan, or the NMFS RPA include nor suggest raising Shasta Dam as an option for increasing the cold water pool or balancing carryover storage with instream flow needs for winter-run Chinook salmon. However, this DEIS does provide a viable option for increasing water supply reliability as well as increase the cold water pool and meet the NMFS 2009 RPA carryover storage requirements and improve conditions for Chinook salmon in the Sacramento River downstream from Keswick Dam. This is particularly important as climate change occurs and water needs increase.

DFW-76: Text in the DEIS was revised. With regards to responding to the comment letter submitted for the Draft Feasibility Report, there have been previous review and comment opportunities on documents related to the SLWRI. At this time we are responding to questions submitted specifically for the public DEIS. Many modifications to the SLWRI have been made pursuant to previous reviews of the various documents related to the project formulation process and Reclamation is not required as part of the NEPA process to review all previous comments on project related documents.

DFW-77: Please refer to Master Comment Response CC-1, "Climate Change Uncertainty and Related Evaluations."

DFW-78: Mitigation Measure BOT-7 in Chapter 12, "Botanical Resources and Wetlands," requires implementation of a riverine ecosystem mitigation and adaptive management plan to avoid and compensate for the impact of altered flow regimes on riparian and wetland communities. The plan will be developed through a multi-agency collaborative effort before the beginning of project construction. The plan will address potential impacts to riparian and wetland habitat and associated effects to fisheries resources resulting from project operations, identify specific strategies to eliminate these impacts, and implement programs and operational strategies to benefit riparian and wetland habitat. This adaptive management plan has been described in the Final EIS. See Master Comment Response CMS-1, "EIS Mitigation Plan."

DFW-79: With regards to responding to the comment letter submitted for the Draft Feasibility Report, there have been previous review and comment opportunities on documents related to the SLWRI. At this time we are responding to questions submitted specifically for the public DEIS. Many modifications to the SLWRI have been made pursuant to previous reviews of the various documents related to the project formulation process and Reclamation is not required as part of the NEPA process to review all previous comments on project related documents.

DFW-80: Occurrences of "California Resources Agency" in the EIS have been replaced with "California Natural Resources Agency," with the exception of references where the agency name remains consistent with the date of publication. Chapter 1, "Introduction," Section 1.5.1, "Intended Use of Final EIS" of the EIS has been updated to include the California Wild and Scenic River Act as a responsibility of the California Natural Resources Agency.

DFW-81: The commenter is correct with respect to referencing management direction for survey and manage species. Chapter 17, "Land Use," specifically Impact LU-2 has been revised to acknowledge potentially significant impacts and corresponding mitigation measures that may be required. As part of the Biological Evaluation that will be prepared in support of this planning effort, a persistence evaluation will be included. Subsequently, the USFS and/or BLM will make a consistency determination which may trigger the need to amend the respective agency's LRMP.

DFW-82: This text is located on page 2-46, Line Number 23, in Chapter 11, "Fisheries and Aquatic Ecosystems," Section 2.3.5, "Increase

Anadromous Fish Survival." CP3 is compared to the No-Action Alternative, from which there is an increase of 207,400 juvenile Chinook salmon. While other action alternatives may provide larger benefits, each action alternative does provide benefits relative to the No-Action Alternative, and therefore, the title of this alternative reflects a true statement.

DFW-83: Please refer to Master Comment Response DSFISH-3, "Fish Habitat Restoration."

DFW-84: The SRTTG was called out in the NMFS 2009 BO Section 11.2.1.1 identifying it as one of the 4 Fisheries and Operation Technical Teams responsible for adjusting operations to meet contractual obligations for water deliveries and to minimize adverse effects on listed anadromous fish species. This group is further called out in Action I.1.2.4 of the NMFS RPA. The SRTTG is made up of members from Reclamation, USFWS, CDFW, NMFS, SWRCB, Hoopa Tribe, Yurok Tribe, and the Western Area Power Administration.

With respect to responding to the 2008 PAM letter and comment letter on the SLWRI Feasibility Report, there have been previous review and comment opportunities on documents related to the SLWRI. At this time we are responding to questions submitted specifically for the public DEIS. Many modifications to the SLWRI have been made pursuant to previous reviews of the various documents related to the project formulation process and Reclamation is not required as part of the NEPA process to review all previous comments on project related documents.

DFW-85: As stated further down in the same section of the DEIS Chapter 2 "Alternatives," Section 2.3.7, "CP5 – 18.5-Foot Dam Raise, Combination Plan," subsection "Restore Riparian, Floodplain, and Side Channel Habitat," the riparian, floodplain, and side channel habitat restoration measure is identical to that proposed under CP4.

DFW-86: Within Chapter 2, "Alternatives," Section 2.3.8, "Comprehensive Plan Construction Activities Section," the vegetation treatments sections were enhanced to acknowledge the value of forest patches for Bald eagle and other sensitive species. Complete vegetation removal will not occur in areas that contain habitat (i.e., nest trees) for bald eagle or other special-status species. Design measures were developed to avoid these areas as feasible. Bald eagle life history is described in detail in Attachment 2 of the Wildlife Resources Technical Report. Chapter 13, "Wildlife Resources," in the EIS includes details within Section 13.1.2, "Affected Environment," regarding bald eagle surveys, and number of nests in the primary study area between 2007 and 2010. Within the "Direct and Indirect Effects," Section 13.3.4,

Impact Wild-5: Take and Loss of Habitat for the Bald Eagle details impacts to bald eagle. Mitigation measures for Bald Eagle were enhanced in Section 13.3.4. In addition, a Bald and Golden Eagle Management Plan will be developed if warranted. In Chapter 11, "Fisheries and Aquatic Ecosystems," Impact Aqua-1: Effects on Nearshore, Warm-Water Habitat in Shasta Lake from Project Operations and Impact Aqua-2: Effects on Nearshore, Warm-Water Habitat in Shasta Lake from Project Construction addresses impacts related to cover habitat for reservoir fish species.

DFW-87: Please refer to Master Comment Response CEQA-1, "CEQA Compliance."

DFW-88: Please refer to Master Comment Response CEQA-1, "CEQA Compliance"; Master Comment Response NEPA-1, "Sufficiency of the EIS"; and Master Comment Response NEPA-2, "Cumulative Impacts."

DFW-89: Reclamation has gathered information and performed focused studies to document resource conditions and evaluate the potential impacts of the range of alternatives developed through the SLWRI feasibility study. The methods used to evaluate the impacts of the alternatives were based upon Reclamation's standard practices and input from agencies and subject matter experts.

DFW-90: The SLWRI does not cumulatively negatively impact any of the actions identified in the species recovery plans produced for species impacted by the project, or actions identified for species recovery plans for species not impacted by the project in or near the primary and extended study area.

The criteria for the inclusion of a species recovery plan in the SLWRI cumulative effects analysis was whether or not the species recovery plan had past, present, or reasonably foreseeable actions being implemented on the ground in or near the primary or extended study area. Additionally, the SLWRI cumulative effects analysis assesses actions which could potentially have negative cumulative impacts, not those that may be beneficial. Revisions to the text of the Final EIS were made in response to this comment.

The 1992 DFG Bank Swallow Recovery Plan has actions identified for set-back levees (meander belt concept) on page 11, provisions for impact avoidance on page 12, and a habitat preserve concept on page 13 of the document. However, none of the actions identified fit the criteria for inclusion in the SLWRI cumulative effects analysis, nor would they be negatively impacted cumulatively by implementation of any of the project alternatives. Therefore, the 1992 DFG Bank Swallow Recovery Plan is not included in the SLWRI cumulative effects analysis.

The 2002 Region 1 USFWS California Red-legged Frog Recovery Plan identifies a number of management and prescriptive actions, none of which have been specifically identified as occurring in or near the primary or extended study area and are not expected to be cumulatively affected by the SLWRI project alternatives. Any potential direct impacts to the Red-legged frog are addressed in Chapter 13, “Wildlife Resources,” and through environmental commitments and mitigation plans. Therefore, the 2002 Region 1 USFWS California Red-legged Frog Recovery Plan is not included in the SLWRI cumulative effects analysis.

The 2009 NMFS Draft Recovery Plan and the 2014 Final Recovery Plan for Sacramento River winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and The Distinct Population segment of Central Valley Steelhead are not included in the SLWRI cumulative effects analysis on the same premise as the 1992 DFG Bank Swallow Recovery Plan. At this time, actions have not been identified for on-the-ground implementation in the regions identified in the plan encompassing the primary and extended study area. It should be noted that the 2009 NMFS Biological Opinion and Sacramento River Habitat Restoration and Enhancement and Fish Passage Actions are included in the cumulative effects analysis because they fit the criteria for the analysis.

DFW-91: Text amended to remove the Invasive Non-Native Plant (Weed) Management Plan for the Mouth of Cottonwood Creek Wildlife Area project from the qualitative cumulative effects analysis in Chapter 3, "Considerations for Describing Affected Environment and Environmental Consequences," due to the project no longer being active. A formal update of the South Fork Cottonwood Creek Nonnative Plant Management and Control Project the project is not available at this time. This project has not been added to the cumulative effects analysis for lack of updated information. The cumulative effects analysis only considers projects which “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions” (40 CFR 1508.7).

DFW-92: Information for an update to the project description for the cumulative effects analysis is not available at this time. The project website has not been updated since 2010. Project removed from cumulative effects analysis.

Please refer to Master Comment Response GEN-4, “Best Available Information.”

DFW-93: A formal update of the project is not available at this time. The project has been removed from the cumulative effects analysis for lack of updated information.

DFW-94: The Natomas Central Mutual Water Company completed the American Basin Fish Screen and Habitat Improvement Project as part of CVPIA 3406(b)(21). This project was implied in the cumulative effects analysis as an action under CVPIA 3406(b)(21). Text has been amended as per this comment to include an explicit description of the American Basin Fish Screen and Habitat Improvement Project as follows: American Basin Fish Screen and Habitat Improvement Project The American Basin Fish Screen and Habitat Improvement Project is a river intake facility, including the fish screen, 434 cfs pumping plant, access bridges, canal connection, irrigation canal, connections to existing canals, and hibernacula and wetlands plantings on and near the Sacramento River completed by the Natomas Central Mutual Water Company as part of CVPIA 3406(b)(21).

DFW-95: The text was revised to reflect the understanding of potential geomorphic conditions at the major tributaries under the action alternatives.

DFW-96: The text was revised to reflect the understanding of potential geomorphic conditions on the upper Sacramento River within the primary study area under the action alternatives.

DFW-97: The text was revised to reflect the understanding of potential geomorphic conditions on the upper Sacramento River within the primary study area under the action alternatives.

DFW-98: This EIS does not evaluate the effects of geomorphic changes at major tributaries that may have occurred historically as a result of construction of Shasta Dam. The evaluation conducted for this EIS considers the action alternatives in comparison to the No Action Alternative. Under the No-Action Alternative, Shasta Dam operations would not change. Under the Action Alternatives, operational changes would be minimal, such that Sacramento River water surface elevations would be very similar from conditions under the No-Action Alternative. Minimal changes in water surface elevations between the No-Action Alternative and the action alternatives would limit gravel removal via downcutting at the confluence with the Sacramento River. Because it is not anticipated that fluvial geomorphology or downstream tributary fluvial geomorphology would be altered significantly, no mitigation measures is necessary. However, mitigation measure Geo-9 was developed to implement coordination on an annual basis with relevant river management and habitat restoration efforts between Keswick Dam and Red Bluff, including but not limited to the members of the

Sacramento River Temperature Task Group. The purpose of this coordination will be to discuss how releases from Shasta and Keswick Dams could be managed to best enhance downstream objectives, such as ramping rates or temperature targets, that are consistent with the CVP's capabilities and primary operating objectives.

DFW-99: See response to comment DFW-98.

DFW-100: See response to comment DFW-98.

DFW-101: See response to comment DFW-98.

DFW-102: Table has been updated to reflect the status of this species.

DFW-103: Table 11-1 has been updated to include River lamprey (Lampetra ayresi). Little information exists for this species in California, and most sources suggest it does not occur in the primary study area but does occur in the extended study area and tributaries.

DFW-104: Text has been revised to include critical habitat.

DFW-105: The referenced text has been revised to reflect that the program name is now "Ecosystem Restoration Program."

DFW-106: The text to which this comment refers is the NMFS 1993 BO which is cited in the text. No change was made.

DFW-107: This section describes the Fisheries Technical Teams. The Water Operations Technical Team (WOMT) is not among that group. Text was not revised.

DFW-108: See response to DFW-81.

DFW-109: Chapter 17, "Land Use," has been revised to include a discussion of USFS lands along the upper Sacramento River near the Red Bluff Pumping Plant. The DEIS included a discussion of BLM lands within the primary study area; this discussion has been enhanced in the Final EIS.

DFW-110: Text revised to reflect comment.

DFW-111: Additional details on the plan were not added as it is does not add additional information on fisheries resources beneficial for the SLWRI. However, the Yolo County citation was added to the document, and the reference included in Chapter 30, "References." Chapter 17, "Land Use," provides information on the general plans (City and County) that Reclamation has deemed applicable for consideration in the EIS.

DFW-112: Comment noted. Revisions were made to Chapter 11, "Fisheries and Aquatic Ecosystems."

DFW-113: Text revised to reflect comment.

DFW-114: The Sacramento River Watershed Program is discussed in Chapter 12, "Botanical Resources and Wetlands," Section 12.2.4, "Federal, State, and Local Programs and Projects," and in Chapter 13, "Wildlife Resources," Section 13.2.4, "Federal, State, and Local Programs and Projects."

DFW-115: There have been previous review and comment opportunities on documents related to the SLWRI. At this time we are responding to questions submitted specifically for the public DEIS. Many modifications to the SLWRI have been made pursuant to previous reviews of the various documents related to the project formulation process and Reclamation is not required as part of the NEPA process to review all previous comments on project related documents.

DFW-116: Text revised to provide clarification.

DFW-117: Text revised to clarify model limitations. Please refer to Master Comment Response DSFISH-1, "SALMOD Model for Sacramento River Chinook Salmon," and Master Comment Response DSFISH-2, "Other Fisheries Models and Tools."

DFW-118: The starting number of adult spawning Chinook salmon (each run) input into SALMOD was based on the AFRP Sacramento River doubling goals, per the request of the USFWS and CDFW during SLWRI fisheries technical team meetings. These AFRP targets are for the river between the confluence with the Feather River and Keswick Dam, so the number of adult spawners were adjusted to cover the reach between RBPP and Keswick Dam. The numbers in the table presented in the DEIS are likely underrepresented of what the true AFRP goal likely is for each run in the evaluated reach of river.

While the spring-run Chinook salmon in that spawn in the Sacramento River between Keswick Dam and Red Bluff Pumping Plant may be of questionable genetic integrity, they are still considered as spring-run Chinook salmon by CDFW and other resource agencies while conducting annual spawner estimates (see Grand Tab Table at http://www.calfish.org/LinkClick.aspx?fileticket=wXbihOvQ7JU%3d&tabid=213&mid=524). Also, the Sacramento River within this reach is included in the designated critical habitat for spring-run Chinook salmon. In a Fisheries Technical Team meeting in Red Bluff on July 5, 2007, NMFS stated that regardless of the actual number of spring-run present in the Sacramento River, the Recovery Plan, critical habitat, and

AFRP goals require that Reclamation must include protective measures for spring-run Chinook salmon, and therefore need to include spring-run Chinook salmon in the analysis.

DFW-119: There have been previous review and comment opportunities on documents related to the SLWRI. At this time we are responding to questions submitted specifically for the public DEIS. Many modifications to the SLWRI have been made pursuant to previous reviews of the various documents related to the project formulation process and Reclamation is not required as part of the NEPA process to review all previous comments on project related documents.

DFW-120: The significance criteria are listed here per the requirements of CEQA. However, whenever specific regulatory such as ESA or other legal requirements dictate specific metrics to determine significance, they have been described in further detail in Section 11.3.1, "Methods and Assumptions," in Chapter 11, "Fisheries and Aquatic Ecosystems."

Please refer to Master Comment Response ESA-1, "Compliance with the Endangered Species Act."

DFW-121: Implementation of Mitigation Measure Aqua-15 will maintain flows in the Feather, American, and Trinity Rivers pursuant to existing operational agreements, BOs, and standards that are protective of fisheries resources.

Please refer to Master Comment Response DSFISH-10, "Methodology for Evaluating Fisheries Impacts."

DFW-122: Please refer to Master Comment Response DSFISH-10, "Methodology for Evaluating Fisheries Impacts."

DFW-123: Chapter 7, "Water Quality," and the associated Water Quality Technical Report provide a comprehensive discussion of the nature and location of historic mining activities and existing features as they relate to heavy metals and other water quality constituents. Under the No-Action Alternative, the existing mine drainage issues will continue consistent with abatement efforts of land owners and managers. With the exception of an isolated area near the Bully Hill mine complex, there are no abandoned or active mines that would be subject to inundation or disturbance if the SLWRI project is authorized.

The discussion of fisheries impacts in Chapter 11, "Fisheries and Aquatic Ecosystems," referenced by the commenter is specific to impacts to cold water habitat. Discussion of water quality impacts on beneficial uses (e.g., cold water habitat) is provided in Chapter 7, "Water Quality," specifically Impacts WQ-3 and WQ-6.

DFW-124: The EIS was revised to enhance the discussion of Fisheries and Aquatic Resources, impacts to fisheries and aquatic resources, and mitigation measures for impacted fisheries and aquatic resources. As part of a detailed technical study of the tributaries to Shasta Lake, field surveys and sampling efforts of the lower reaches of representative tributaries to the lake did not detect any special-status mollusks. One special-status aquatic mollusk does occur in Shasta Lake, while limited information is known on this species specific to Shasta Lake, this discussion does take a conservative approach and presume impacts.

DFW-125: Chapter 11, "Fisheries and Aquatic Ecosystems," Section 11.3, "Environmental Consequences" describe the Reservoir Fisheries Analyses and models used to determine that the expansion of the surface area of Shasta Lake could be beneficial. This analysis considered and incorporated local knowledge from agency biologist and relevant scientific literature.

DFW-126: Comment noted. The tributary investigations were completed. This information is included in Chapter 11, "Fisheries and Aquatic Ecosystems," of the Final EIS. The report documenting this investigation is cited as Reclamation 2014 in Chapter 11.

DFW-127: Chapter 7, "Water Quality," and the associated Water Quality Technical; Report provide a comprehensive discussion of water quality in the upper Sacramento River; specifically Impacts WQ-7 through WQ-12. Of these impacts, only one (WQ-12) was deemed significant for action alternatives. Mitigation Measure WQ-12 would be implemented to address these impacts.

Please refer to Master Comment Response WQ-1, "Remediation of Abandoned Mines in the Shasta Lake Area."

DFW-128: Please see Biological Resources Appendix, Fisheries and Aquatic Resources Technical Report for the full analysis for each of the Chinook Salmon runs. This information was used and summarized in the DEIS Chapter 11, "Fisheries and Aquatic Ecosystems."

Please refer to Master Comment Response DSFISH-10, "Methodology for Evaluating Fisheries Impacts."

DFW-129: Please refer to Master Comment Response DSFISH-10, "Methodology for Evaluating Fisheries Effects."

DFW-130: Please refer to Master Comment Response DSFISH-10, "Methodology for Evaluating Fisheries Impacts," And Master Comment Response CMS-1, "EIS Mitigation Plan."

DFW-131: Chapter 11, "Fisheries and Aquatic Resources," of the DEIS acknowledges the potential adverse effects of altered flow regimes on river sinuosity. Reduced flow can decrease sinuosity, thus potential project impacts to sinuosity are reflected in the effects analyses for potential changes to flow for each alternative. Analyses for direct and indirect effects to flow among alternatives is found throughout Section 11.3.3, "Direct and Indirect Effects," of the DEIS. Impact Geo-9: Substantial Increase in Channel Erosion and Meander Migration in Chapter 4, "Geology, Geomorphology, Minerals, and Soils," Section 4.3.3, "Direct and Indirect Effects," describes the characteristics of peak flows, including the duration, magnitude and rate at which flows change downstream from Shasta Dam. In Chapter 3 "Considerations for Describing Affected Environment and Environmental Consequences," within Table 3-1, there is a subheader entitled "Qualitative Assessment of Actions Related to Flood Management" which covers numerous programs related to flood management, including the DWR program. Therefore, the DWR flood management program was included in the cumulative effects analysis.

DFW-132: Please refer to Master Comment Response ESA-1, "Compliance with the Endangered Species Act."

DFW-133: Please refer to Master Comment Response DSFISH-10, "Methodology for Evaluating Fisheries Impacts."

DFW-134: See responses to comments DFW-51, DFW-95, DFW-98, and DFW-99.

DFW-135: Please refer to Master Comment Response ESA-1, "Compliance with the Endangered Species Act."

DFW-136: Please refer to Master Comment Response ESA-1, "Compliance with the Endangered Species Act."

DFW-137: Impact Aqua-24 in Chapter 11, "Fisheries and Aquatic Resources," Section 11.3.3, "Direct and Indirect Effects" has been revised.

DFW-138: The EIS, Chapter 7, "Water Quality," includes a discussion of heavy metals and the associated impacts, including a discussion of beneficial uses (e.g., cold water fishery). No known sources of mercury are within the immediate vicinity of Shasta Lake, although the EIS does disclose the fact that Shasta Lake is an impaired water body due to historic mining and smelting activity in the watershed.

Please refer to Master Comment Response WQ-1, "Remediation of Abandoned Mines in the Shasta Lake Area."

DFW-139: Comment noted. The tributary investigations were completed. This information is included in Chapter 11, "Fisheries and Aquatic Ecosystems," of the Final EIS. The report documenting this investigation is cited as Reclamation 2014 in Chapter 11.

DFW-140: Information concerning environmental commitments for CP4 can be found in Chapter 11, "Fisheries and Aquatic Ecosystems," Section 11.3.5, "Mitigation Measures." Resource and Regulatory agencies will determine whether the mitigation commitments will be sufficient for regulatory purposes.

Please refer to Master Comment Response DSFISH-10, "Methodology for Evaluating Fisheries Impacts."

DFW-141: The additional storage created by the 18.5-foot dam raise under alternative CP4 and CP4A would be used to improve the ability to meet water temperature objectives and habitat requirements for anadromous fish during drought years and increase water supply reliability.

DFW-142: The comment refers to a preliminary draft EIS issued in 2012, not the June 2013 DEIS. The DEIS did include additional information on this topic. The Botanical Resources and Wetlands Technical Report and EIS include updated information on *Neviusia cliftonii*. Surveys were completed to map population sizes and locations to accurately quantify the impacts to this species from the dam raise and lake inundation. In Chapter 12, "Botanical Resources and Wetlands," Section 12.3.4, "Direct and Indirect Effects," Impact Bot-2, "Loss of MSCS Covered Species," and Impact BOT-3, "Loss of USFS Sensitive, BLM Sensitive, or CRPR Species" include the analysis of impacts to *Neviusia cliftonii*. Mitigation measures were developed in cooperation with the USFWS, USFS, and BLM, and were updated in Section 12.3.5, "Mitigation Measures," of the EIS.

DFW-143: The comment refers to a preliminary draft EIS issued in 2012, not the June 2013 DEIS. The DEIS did include additional information on this topic. The Botanical Resources and Wetlands Technical Report and EIS include updated information on *Neviusia cliftonii*. Surveys were completed to map population sizes and locations to accurately quantify the impacts to this species from the dam raise and lake inundation. In Chapter 12, "Botanical Resources and Wetlands," Section 12.3.4, "Direct and Indirect Effects," Impact Bot-2, "Loss of MSCS Covered Species," and Impact BOT-3, "Loss of USFS Sensitive, BLM Sensitive, or CRPR Species" include the analysis of impacts to *Neviusia cliftonii*. Mitigation measures were developed in cooperation with the USFWS, USFS, and BLM, and were updated in Section 12.3.5, "Mitigation Measures," of the EIS.

DFW-144: The comment refers to a preliminary draft EIS issued in 2012, not the June 2013 DEIS. The DEIS did include additional information on this topic. The Botanical Resources and Wetlands Technical Report and EIS include updated information on *Neviusia cliftonii*. Surveys were completed to map population sizes and locations to accurately quantify the impacts to this species from the dam raise and lake inundation. In Chapter 12, "Botanical Resources and Wetlands," Section 12.3.4, "Direct and Indirect Effects," Impact Bot-2, "Loss of MSCS Covered Species," and Impact BOT-3, "Loss of USFS Sensitive, BLM Sensitive, or CRPR Species" include the analysis of impacts to *Neviusia cliftonii*. Mitigation measures were developed in cooperation with the USFWS, USFS, and BLM, and were updated in Section 12.3.5, "Mitigation Measures," of the EIS.

DFW-145: The comment refers to a preliminary draft EIS issued in 2012, not the June 2013 DEIS. The DEIS did include additional information on this topic. The Botanical Resources and Wetlands Technical Report and EIS include updated information on *Neviusia cliftonii*. Surveys were completed to map population sizes and locations to accurately quantify the impacts to this species from the dam raise and lake inundation. In Chapter 12, "Botanical Resources and Wetlands," Section 12.3.4, "Direct and Indirect Effects Impact Bot-2, "Loss of MSCS Covered Species," and Impact BOT-3, "Loss of USFS Sensitive, BLM Sensitive, or CRPR Species" include the analysis of impacts to *Neviusia cliftonii*. Mitigation measures were developed in cooperation with the USFWS, USFS, and BLM, and were updated in Section 12.3.5, "Mitigation Measures," of the EIS.

DFW-146: The comment refers to a preliminary draft EIS issued in 2012, not the June 2013 DEIS. The DEIS did include additional information on this topic. The Botanical Resources and Wetlands Technical Report and EIS include updated information on *Neviusia cliftonii*. Surveys were completed to map population sizes and locations to accurately quantify the impacts to this species from the dam raise and lake inundation. In Chapter 12, "Botanical Resources and Wetlands," Section 12.3.4, "Direct and Indirect Effects Impact Bot-2, "Loss of MSCS Covered Species," and Impact BOT-3, "Loss of USFS Sensitive, BLM Sensitive, or CRPR Species" include the analysis of impacts to *Neviusia cliftonii*. Mitigation measures were developed in cooperation with the USFWS, USFS, and BLM, and were updated in Section 12.3.5, "Mitigation Measures," of the EIS.

DFW-147: The comment refers to a preliminary draft EIS issued in 2012, not the June 2013 DEIS. The DEIS did include additional information on this topic. The Botanical Resources and Wetlands Technical Report and EIS include updated information on *Neviusia cliftonii*. Surveys were completed to map population sizes and locations

to accurately quantify the impacts to this species from the dam raise and lake inundation. In Chapter 12, "Botanical Resources and Wetlands," Section 12.3.4, "Direct and Indirect Effects," Impact Bot-2, "Loss of MSCS Covered Species," and Impact BOT-3, "Loss of USFS Sensitive, BLM Sensitive, or CRPR Species" include the analysis of impacts to *Neviusia cliftonii*. Mitigation measures were developed in cooperation with the USFWS, USFS, and BLM, and were updated in Section 12.3.5, "Mitigation Measures," of the EIS.

DFW-148: The comment refers to a preliminary draft EIS issued in 2012, not the June 2013 DEIS. The DEIS did include additional information on this topic. The Botanical Resources and Wetlands Technical Report and EIS include updated information on *Neviusia cliftonii*. Surveys were completed to map population sizes and locations to accurately quantify the impacts to this species from the dam raise and lake inundation. In Chapter 12, "Botanical Resources and Wetlands," Section 12.3.4, "Direct and Indirect Effects," Impact Bot-2, "Loss of MSCS Covered Species," and Impact BOT-3, "Loss of USFS Sensitive, BLM Sensitive, or CRPR Species" include the analysis of impacts to *Neviusia cliftonii*. Mitigation measures were developed in cooperation with the USFWS, USFS, and BLM, and were updated in Section 12.3.5, "Mitigation Measures," of the EIS.

DFW-149: The comment refers to a preliminary draft EIS issued in 2012, not the June 2013 DEIS. The DEIS did include additional information on this topic. The Botanical Resources and Wetlands Technical Report and EIS include updated information on *Neviusia cliftonii*. Surveys were completed to map population sizes and locations to accurately quantify the impacts to this species from the dam raise and lake inundation. In Chapter 12, "Botanical Resources and Wetlands," Section 12.3.4, "Direct and Indirect Effects," Impact Bot-2, "Loss of MSCS Covered Species," and Impact BOT-3, "Loss of USFS Sensitive, BLM Sensitive, or CRPR Species" include the analysis of impacts to *Neviusia cliftonii*. Mitigation measures were developed in cooperation with the USFWS, USFS, and BLM, and were updated in Section 12.3.5, "Mitigation Measures," of the EIS.

DFW-150: The comment refers to a preliminary draft EIS issued in 2012, not the June 2013 DEIS. The DEIS did include additional information on this topic. The Botanical Resources and Wetlands Technical Report and EIS include updated information on *Neviusia cliftonii*. Surveys were completed to map population sizes and locations to accurately quantify the impacts to this species from the dam raise and lake inundation. In Chapter 12, "Botanical Resources and Wetlands," Section 12.3.4, "Direct and Indirect Effects," Impact Bot-2, "Loss of MSCS Covered Species," and Impact BOT-3, "Loss of USFS Sensitive, BLM Sensitive, or CRPR Species" include the analysis of impacts to

Neviusia cliftonii. Mitigation measures were developed in cooperation with the USFWS, USFS, and BLM, and were updated in Section 12.3.5, "Mitigation Measures," of the EIS.

DFW-151: The comment refers to a preliminary draft EIS issued in 2012, not the June 2013 DEIS. The DEIS did include additional information on this topic. The Botanical Resources and Wetlands Technical Report and EIS include updated information on Shasta snow-wreath and *Neviusia cliftonii*. Surveys were completed to map population sizes and locations to accurately quantify the impacts to MSCS plant species from the dam raise and lake inundation. In Chapter 12, "Water Quality," of the EIS, Section 12.3.4, "Direct and Indirect Effects," Impact Bot-2, "Loss of MSCS Covered Species," and Impact BOT-3, "Loss of USFS Sensitive, BLM Sensitive, or CRPR Species" include the analysis of impacts to Shasta snow-wreath. Mitigation measures were developed in cooperation with the USFWS, USFS, and BLM, and were updated in the mitigation measures Section 12.3.5 of the EIS.

DFW-152: The comment refers to a preliminary draft EIS issued in 2012, not the June 2013 DEIS. The DEIS did include additional information on this topic. The Botanical Resources and Wetlands Technical Report and EIS include updated information on Shasta snow-wreath and *Neviusia cliftonii*. Surveys were completed to map population sizes and locations to accurately quantify the impacts to MSCS plant species from the dam raise and lake inundation. In Chapter 12, "Water Quality," of the EIS, Section 12.3.4, "Direct and Indirect Effects," Impact Bot-2, "Loss of MSCS Covered Species," and Impact BOT-3, "Loss of USFS Sensitive, BLM Sensitive, or CRPR Species" include the analysis of impacts to Shasta snow-wreath. Mitigation measures were developed in cooperation with the USFWS, USFS, and BLM, and were updated in the mitigation measures Section 12.3.5 of the EIS.

DFW-153: The comment refers to a preliminary draft EIS issued in 2012, not the June 2013 DEIS. The DEIS did include additional information on this topic. The Botanical Resources and Wetlands Technical Report and EIS include updated information on Shasta snow-wreath and *Neviusia cliftonii*. Surveys were completed to map population sizes and locations to accurately quantify the impacts to MSCS plant species from the dam raise and lake inundation. In Chapter 12, "Water Quality," of the EIS, Section 12.3.4, "Direct and Indirect Effects," Impact Bot-2, "Loss of MSCS Covered Species," and Impact BOT-3, "Loss of USFS Sensitive, BLM Sensitive, or CRPR Species" include the analysis of impacts to Shasta snow-wreath. Mitigation measures were developed in cooperation with the USFWS, USFS, and

BLM, and were updated in the mitigation measures Section 12.3.5 of the EIS.

DFW-154: The comment refers to a preliminary draft EIS issued in 2012, not the June 2013 DEIS. The DEIS did include additional information on this topic. The Botanical Resources and Wetlands Technical Report and EIS include updated information on *Neviusia cliftonii*. Surveys were completed to map population sizes and locations to accurately quantify the impacts to this species from the dam raise and lake inundation. In Chapter 12, "Botanical Resources and Wetlands," Section 12.3.4, "Direct and Indirect Effects," Impact Bot-2, "Loss of MSCS Covered Species," and Impact BOT-3, "Loss of USFS Sensitive, BLM Sensitive, or CRPR Species" include the analysis of impacts to *Neviusia cliftonii*. Mitigation measures were developed in cooperation with the USFWS, USFS, and BLM, and were updated in Section 12.3.5, "Mitigation Measures," of the EIS. There are private lands outside the study area that contain *Neviusia cliftonii* populations that were discovered following the release of the DEIS.

DFW-155: The comment refers to a preliminary draft EIS issued in 2012, not the June 2013 DEIS. The DEIS did include additional information on this topic. The Botanical Resources and Wetlands Technical Report and EIS include updated information on Shasta snow-wreath. Surveys were completed to map population sizes and locations to accurately quantify the impacts to Shasta snow-wreath populations from the dam raise and lake inundation In Chapter 12, "Botanical Resources and Wetlands," Section 12.3.4, "Direct and Indirect Effects," Impact Bot-2, "Loss of MSCS Covered Species," and Impact BOT-3, "Loss of USFS Sensitive, BLM Sensitive, or CRPR Species" include the analysis of impacts to *Neviusia cliftonii*. Mitigation measures were developed in cooperation with the USFWS, USFS, and BLM, and were updated in Section 12.3.5, "Mitigation Measures," of the EIS.

DFW-156: In addition to enhanced impact analyses and mitigation measures within Chapter 12, "Botanical Resources and Wetlands," Section 12.3.6, "Cumulative Effects," was revised.

DFW-157: The comment refers to a preliminary draft EIS issued in 2012, not the June 2013 DEIS. The DEIS did include additional information on this topic. In addition to enhanced impact analyses and mitigation measures within Chapter 12, "Botanical Resources and Wetlands," Section 12.3.6, "Cumulative Effects," was revised.

DFW-158: The comment refers to a preliminary draft EIS issued in 2012, not the June 2013 DEIS. The DEIS did include additional information on this topic. Chapter 12, "Botanical Resources and

Wetlands," of the EIS includes updated impacts discussions, revised impact analyses, and enhanced mitigation measures.

DFW-159: For species that are relatively widespread (i.e., foothill yellow-legged frog and pacific fisher), a habitat-based impact analysis was used. However, for endemics or species with a more narrow range (i.e., purple martin nesting habitat) the impact analysis was more detailed and not based on habitat alone.

DFW-160: As stated in Section 2.2 of the ASIP Guidebook, the ASIP should "[i]dentify species and habitats that are present or may be present in the Action Area including: (1) MSCS species covered under CALFED Programmatic BOs and NCCP Determination. To develop the species list, it is recommended that the Implementing Entities: (a) Include species lists from the Fishery Agencies as described under Section 1.3 for the Action Area; (b) Conduct a search of DFG's Natural Diversity Database to identify known occurrences of special-status species within the Action Area: http://www.dfg.ca.gov/whdab/html/cnddb.html; (c) Conduct a search of the California Native Plant Society's Inventory of Rare and Endangered Plants; and (d) Submit a request in writing to DFG for information about any recent observations of special-status species within or near the geographic scope of the project that are not included in the special-status species occurrence databases available to the public..." Reclamation evaluated all species evaluated under the MSCS (as identified in MSCS Table 2-2) and augmented this list with information obtained from USFWS, CNPS, and CDNNB. Reclamation will submit a written request to CDFW.

DFW-161: See response to comment DFW-160.

DFW-162: Within Chapter 13, "Wildlife Resources," of the Final EIS, Section 13.1, "Affected Environment," and Section 13.3.4, "Direct and Indirect Effects," were revised.

DFW-163: The EIS and Wildlife Resources Technical Report Attachment 2, "Species Accounts for Special-Status Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study Area" was updated to include the correct number of Shasta salamander sites. The Wildlife Resources Technical Report – Attachment 9, "Shasta Salamander Survey Report," contains information on Shasta salamander survey results. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-1, "Take and Loss of Habitat for the Shasta salamander" includes the analysis of impacts to Shasta salamander. The EIS was revised to enhance Section 13.3.5, "Mitigation Measures," for the Shasta salamander.

DFW-164: The EIS and Wildlife Resources Technical Report Attachment 2, "Species Accounts for Special-Status Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study Area" was updated to include the correct number of Shasta salamander sites. The Wildlife Resources Technical Report – Attachment 9, "Shasta Salamander Survey Report," contains information on Shasta salamander survey results. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-1, "Take and Loss of Habitat for the Shasta salamander" includes the analysis of impacts to Shasta salamander. The EIS was revised to enhance Section 13.3.5, "Mitigation Measures," for the Shasta salamander.

DFW-165: The EIS and Wildlife Resources Technical Report Attachment 2, "Species Accounts for Special-Status Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study Area" was updated to include the correct number of Shasta salamander sites. The Wildlife Resources Technical Report – Attachment 9, "Shasta Salamander Survey Report," contains information on Shasta salamander survey results. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-1, "Take and Loss of Habitat for the Shasta salamander" includes the analysis of impacts to Shasta salamander. The EIS was revised to enhance Section 13.3.5, "Mitigation Measures," for the Shasta salamander.

DFW-166: The EIS and Wildlife Resources Technical Report Attachment 2, "Species Accounts for Special-Status Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study Area" includes enhanced discussions on foothill yellow-legged frog and tailed frog habitat. Northwestern pond turtle habitat is also discussed in Attachment 2. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-2, "Impact on the Foothill Yellow-Legged Frog and Tailed Frog and Their Habitat" includes the analysis of impacts to foothill yellow-legged frog and tailed frog. Impact Wild-3: Impact on the Northwestern Pond Turtle and Its Habitat includes the analysis of impacts to northwestern pond turtle.

DFW-167: The EIS and Wildlife Resources Technical Report Attachment 2, "Species Accounts for Special-Status Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study Area" includes discussion on peregrine falcon and its habitat. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-4, "Impact on American Peregrine Falcon" includes the analysis of impacts to peregrine falcon. The EIS was revised to enhance Section 13.3.5, "Mitigation Measures," for peregrine falcon.

DFW-168: The EIS and Wildlife Resources Technical Report Attachment 2, "Species Accounts for Special-Status Wildlife in the

Shasta Lake and Vicinity Portion of the Primary Study Area" includes discussion on bald eagle and its habitat. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-5, "Take and Loss of Habitat for the Bald Eagle" includes the analysis of impacts to bald eagle and its habitat. The EIS was revised to enhance Section 13.3.5, "Mitigation Measures," for bald eagle. In addition, a Bald and Golden Eagle Management Plan will be developed if warranted.

DFW-169: The Wildlife Resources Technical Report – Attachment 9, "Shasta Salamander Survey Report" contains information on Shasta salamander surveys including the level of survey effort, methods, and results. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-1, "Take and Loss of Habitat for the Shasta salamander," includes the analysis of impacts to Shasta salamander. The Wildlife Resources Technical Report - Attachment 2, "Species Accounts for Special-Status Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study Area," was revised to enhance the discussion of Shasta salamander. In addition, the EIS was revised to enhance the impact analysis and mitigation measures in Section 13.3.5 for Shasta salamander.

DFW-170: The Wildlife Resources Technical Report – Attachment 9, "Shasta Salamander Survey Report" contains information on Shasta salamander surveys including the level of survey effort, methods, and results. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-1, "Take and Loss of Habitat for the Shasta salamander," includes the analysis of impacts to Shasta salamander. The Wildlife Resources Technical Report - Attachment 2, "Species Accounts for Special-Status Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study Area," was revised to enhance the discussion of Shasta salamander. In addition, the EIS was revised to enhance the impact analysis and mitigation measures in Section 13.3.5 for Shasta salamander.

DFW-171: The Wildlife Resources Technical Report Attachment 2, "Species Accounts for Special-Status Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study Area," includes discussion on bald eagle and its habitat. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-5, "Take and Loss of Habitat for the Bald Eagle" includes the analysis of impacts to bald eagle and its habitat. The EIS was revised to enhance the impact analysis and mitigation measures in Section 13.3.5 for bald eagle. In addition, a Bald and Golden Eagle Management Plan will be developed if warranted with input from CDFW and USFWS.

DFW-172: The Wildlife Resources Technical Report - Attachment 10, "Terrestrial Mollusk Survey Report," contains information on terrestrial mollusk surveys including the level of effort, methods, and results. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-12, "Impacts on Special-Status Mollusks (Shasta Sideband, Wintu Sideband, Shasta Chaparral, and Shasta Hesperian) and Their Habitat" includes the analysis of impacts to special-status terrestrial mollusks. In addition, the EIS was revised to enhance the impact analysis and mitigation measures in Section 13.3.5 for special-status terrestrial mollusks.

DFW-173: General Wildlife Habitat is based on the California Wildlife Habitat Relationship system including those habitats not linked to a specific species. This is defined in Section 13.1, "Affected Environment," in Chapter 13, "Wildlife Resources," of the EIS. The HEP analysis was used in the USFWS CAR to characterize existing conditions and was considered in the impacts analysis and mitigation development.

DFW-174: Chapter 12, "Botany," indicates that "acreage values are approximate." As noted in Impact Wild-17 (CP1), "the total amount of riparian vegetation would not decline substantially, [but] the portion in early successional stages would be reduced." Thus, the overall amount of riparian habitat (measured in acres) is less affected than the composition of this this habitat (e.g., early successional versus late successional). Therefore, the impact is adequately analyzed in terms of how the composition change (not an acreage change) affect various species.

DFW-175: Please refer to Master Comment Response EI-2, "Potential Impacts to Bank Swallow and Bank Swallow Habitat," and Master Comment Response DSFISH-2, "Other Fisheries Models and Tools."

DFW-176: Please refer to Master Comment Response EI-2, "Potential Impacts to Bank Swallow and Bank Swallow Habitat."

DFW-177: Please refer to Master Comment Response EI-2, "Potential Impacts to Bank Swallow and Bank Swallow Habitat."

DFW-178: The Wildlife Resources Technical Report – Attachment 9, "Shasta Salamander Survey Report," contains information on Shasta salamander surveys including the level of survey effort, methods, and results. The Wildlife Resources Technical Report Attachment 2, "Species Accounts for Special-Status Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study Area," was revised to enhance the discussion of Shasta salamander. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects Section," Impact

Wild-1, "Take and Loss of Habitat for the Shasta salamander," includes the analysis of impacts to Shasta salamander. In addition, the EIS was revised to enhance the impact analysis and mitigation measures Section 13.3.5 for Shasta salamander.

DFW-179: The Wildlife Resources Technical Report – Attachment 9, "Shasta Salamander Survey Report," contains information on Shasta salamander surveys including the level of survey effort, methods, and results. The Wildlife Resources Technical Report Attachment 2, "Species Accounts for Special-Status Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study Area," was revised to enhance the discussion of Shasta salamander. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects Section," Impact Wild-1, "Take and Loss of Habitat for the Shasta salamander," includes the analysis of impacts to Shasta salamander. In addition, the EIS was revised to enhance the impact analysis and mitigation measures Section 13.3.5 for Shasta salamander.

DFW-180: The Wildlife Resources Technical Report – Attachment 9, "Shasta Salamander Survey Report" contains information on Shasta salamander surveys including the level of survey effort, methods, and results. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-1, "Take and Loss of Habitat for the Shasta salamander," includes the analysis of impacts to Shasta salamander. The Wildlife Resources Technical Report - Attachment 2, "Species Accounts for Special-Status Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study Area," was revised to enhance the discussion of Shasta salamander. In addition, the EIS was revised to enhance the impact analysis and mitigation measures in Section 13.3.5 for Shasta salamander.

DFW-181: The Wildlife Resources Technical Report – Attachment 9, "Shasta Salamander Survey Report" contains information on Shasta salamander surveys including the level of survey effort, methods, and results. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-1, "Take and Loss of Habitat for the Shasta salamander," includes the analysis of impacts to Shasta salamander. The Wildlife Resources Technical Report - Attachment 2, "Species Accounts for Special-Status Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study Area," was revised to enhance the discussion of Shasta salamander. In addition, the EIS was revised to enhance the impact analysis and mitigation measures in Section 13.3.5 for Shasta salamander.

DFW-182: The Wildlife Resources Technical Report Attachment 2, "Species Accounts for Special-Status Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study Area," was revised to enhance the

discussion of willow flycatcher, Vaux's swift, yellow warbler, and yellow-breasted chat. Impact Wild-8: Impacts on the Willow Flycatcher, Vaux's Swift, Yellow Warbler, and Yellow-Breasted Chat and Their Foraging and Nesting Habitat includes the analysis of impacts to these species. In addition, the EIS was revised to enhance Section 13.3.4, "Impact Analysis," and Section 13.3.5, "Mitigation Measures," for these species.

DFW-183: The EIS contains additional information from technical studies completed after the DEIS was circulated; specifically, a detailed discussion of barriers to aquatic organisms (upstream and downstream) has been included. The EIS includes an environmental commitment to monitor a potential barrier in the transition reach of Squaw Creek and develop a management plan to address this site if a barrier is documented post-authorization.

The EIS also acknowledges that the creation of transition reaches is a permanent, albeit periodic process.

DFW-184: Chapter 25, "Wild and Scenic River Considerations for McCloud River," of the EIS has been revised to acknowledge the permanent but periodic fluctuations of water levels (Impact WASR-3).

DFW-185: NEPA requires that the lead agency--in this case, Reclamation--determine and disclose the impacts of an action. While the McCloud River is protected under state statute, is not clear what section of the Public Resources Code supports the commenters claim that Reclamation should request an effects determination from the California Natural Resources Agency.

Comments received on the DEIS related to Impacts WASR- 3 and WASR-4 resulted in developing mitigation measures intended to evaluate opportunities available to Reclamation that could potentially mitigate, these impacts to some degree if the SLWRI is authorized.

Please refer to Master Comment Response WASR-6, "Protections of the Lower McCloud River as Identified in the California Public Resources Code, Section 5093.542."

DFW-186: Chapter 25, "Wild and Scenic River Considerations for McCloud River," discusses both the temporary and permanent impacts on the McCloud River. It discloses that, without mitigation, the impact is significant and unavoidable.

DFW-187: During the preparation of the cumulative impact assessment of the SLWRI DEIS, Reclamation carefully considered how to treat various potential future actions and programs consistent with CEQ NEPA Regulations 40 CFR Section 1508.7. Projects which are included

in the SLWRI cumulative effects analysis quantitatively are those that are reasonably foreseeable projects defined as including those with current authorization, secured funding for design and construction, and environmental permitting and compliance activities that are substantially complete (Chapter 2, "Alternatives," Section 2, "No Action"). The actions of the 2009 NMFS Biological Opinion which qualify for inclusion in the SLWRI cumulative effects analysis, the Sacramento River Habitat Restoration and Enhancement and Fish Passage Actions, are described and included in Section 3.2.9, "Cumulative Effects," of Chapter 3, "Considerations for Describing Affected Environment and Environmental Consequences." The 2009 Biological Opinion, and any actions associated with the 2009 Biological Opinion which do not qualify are not included in the cumulative effects analysis, although elements of both are included in the modeling for impacts analysis within the SLWRI DEIS. At present, the USFS does not have any post-Bagley Fire formal plans for salvage logging or soils remediation which qualify for inclusion the cumulative effects analysis; however considerations for post-fire recovery were prescribed by the USFS in the Comprehensive Mitigation Strategy (CMS), included in the SLWRI Final EIS.

DFW-188: NEPA requires that the lead agency--in this case, Reclamation--determine and disclose the impacts of an action. While the McCloud River is protected under state statute, is not clear what section of the Public Resources Code supports the commenters claim that Reclamation should request an effects determination from the California Natural Resources Agency.

Please refer to Master Comment Response WASR-6, "Protections of the Lower McCloud River as Identified in the California Public Resources Code, Section 5093.542."

DFW-189: Please refer to Master Comment Response ALTS-1, "Alternative Selection."

DFW-190: The analysis for the DEIS is complete. Consistent with NEPA, environmentally preferable alternative will be identified in the ROD. It is unclear why public release of the public draft would be questionable. The release of the DEIS is consistent with the NEPA regulations (40 CFR Section 1502.19) for release and notification of a draft statement.

Please refer to Master Comment Response EI-1, "Intent of NEPA Process to Provide Fair and Full Discussion of Significant Environmental Impacts"; Master Comment Response NEPA-1, "Sufficiency of the EIS"; Master Comment Response CEQA-1, "CEQA Compliance"; Master Comment Response ALTS-1, "Alternative

Selection"; Master Comment Response CMS-1, "EIS Mitigation Plan"; and Master Comment Response GEN-8 "Public Outreach and Involvement."

DFW-191: The Fish and Wildlife Coordination Act (Public Law 85-624) does not require the identification of the environmentally preferable alterative. The act states "for the purpose of determining the possible damage to wildlife resources and for the purpose of determining means and measures that should be adopted to prevent the loss of damage to such wildlife resources, as well as to provide concurrently for the development and improvement of such resources, shall be made an integral part of any report prepared or submitted by any agency of the Federal Government..." The Draft Fish and Wildlife Coordination Act Report, prepared by the USFWS, was included in the DEIS. Per the act, Reclamation gave "full consideration to the report..."

Please refer to Master Comment Response CEQA-1, "CEQA Compliance," and Master Comment Response DSFISH-5, "Fish and Wildlife Coordination Act Report."

DFW-192: As stated in the Engineering Summary Appendix, the Pit 7 Afterbay Dam may require the placement of rock dowels and rip rap for slope stability to meet the necessary safety standards. Ancillary facilities will need to be addressed near the Pit 7 Afterbay Dam including relocating the gaging station and cableway that would be inundated by the new high water line, extending the boat barriers, relocating security fences and signs, rehabbing the existing boat ramp, and relocating the warning siren.

After Congressional authorization of an action alternative further planning and design refinements will be required. During that time the appropriate stakeholders will be included where necessary.

DFW-193: This general comment in the introduction of the Fisheries and Aquatic Resources Technical Report was intended to provide background information. It is not a statement specific to the SLWRI Project. The impact discussion in Impact Aqua-1, "Effects on Nearshore, Warm-Water Habitat in Shasta Lake from Project Operations," provided a detailed discussion of these issues in Chapter 11, "Fisheries and Aquatic Ecosystems," of the EIS. This chapter and related technical report have been updated to respond to wide array of comments and to incorporate new information and analysis.

DFW-194: The editorial recommendations submitted by the comment author have been incorporated into the Fisheries and Aquatic Ecosystems Technical Report, Section 1.1.1, "Aquatic Habitat."

DFW-195: Text has been revised to reflect comment.

DFW-196: The editorial recommendations submitted by the comment author have been incorporated into the Fisheries and Aquatic Ecosystems Technical Report, Section 1.1.1, "Aquatic Habitat."

DFW-197: As the SLWRI has progressed, descriptions of affected environment, as well as other sections in the EIS (e.g., regulatory settings, cumulative effects) and related evaluations have been updated as appropriate to reflect changes in SLWRI baseline assumptions. These changes include, among others, changes in regulatory conditions and CVP and SWP facilities and operations and updates to related projects/programs. This documentation has also been updated, as appropriate for the SLWRI, for the Final EIS. The commenter has not provided any specifics on resource topics that are considered as not reflecting existing conditions.

DFW-198: The Draft Fisheries and Aquatic Ecosystems Technical Report do not contain impact analyses. Section 11.3, "Environmental Consequences and Mitigation Measures," in Chapter 11, "Fisheries and Aquatic Ecosystems," describes the Reservoir Fisheries Analyses and models used to determine that the expansion of the surface area of Shasta Lake could be beneficial. The EIS has been updated in response to comments, new information ad revisions to mitigation measures.

DFW-199: The Fisheries and Aquatic Ecosystems Technical Report does not include an analysis of impacts; impacts analysis and mitigation measures were presented in the DEIS. For the impact analysis regarding lower gradient, fish bearing reaches of the tributaries to Shasta Lake see Impact Geo-2 in Chapter 4, "Geology," Chapter 11, "Fisheries and Aquatic Ecosystems," Impact Aqua-1, "Effects on Nearshore, Warm-Water Habitat in Shasta Lake from Project Operations"; Impact Aqua-6, "Creation or Removal of Barriers to Fish Between Tributaries and Shasta Lake"; and Impact Aqua-7, "Effects on Spawning and Rearing Habitat of Adfluvial Salmonids in Low-Gradient Tributaries to Shasta Lake." The EIS has been updated in response to comments, new information and revisions to mitigation measures.

DFW-200: Comment noted. The Technical Report does not include impact analyses; they are in Chapter 11, "Fisheries and Aquatic Ecosystems."

DFW-201: Comment noted. The EIS Chapter 11, "Fisheries and Aquatic Ecosystems," has been revised to acknowledge that the effects of sport fishing are minimal.

DFW-202: Text has been revised to reflect comment.

DFW-203: Text has been revised to reflect comment.

DFW-204: While the spring-run Chinook salmon in that spawn in the Sacramento River between Keswick Dam and Red Bluff Pumping Plant may be of questionable genetic integrity, they are still considered as spring-run Chinook salmon by DFW and other resource agencies while conducting annual spawner estimates (see Grand Tab Table at http://www.calfish.org/LinkClick.aspx?fileticket=wXbihOvQ7JU%3d&tabid=213&mid=524). Also, the Sacramento River within this reach is included in the designated critical habitat for spring-run Chinook salmon. In a Fisheries Technical Team meeting in Red Bluff on July 5, 2007, NMFS stated that regardless of the actual number of spring-run present in the Sacramento River, the Recovery Plan, critical habitat, and AFRP goals require that Reclamation must include protective measures for spring-run Chinook salmon, and therefore need to include spring-run Chinook salmon in the analysis.

DFW-205: Both Butte and Clear creeks were identified as supporting spring-run Chinook salmon, and as being included as critical habitat 3 paragraphs above the text in the DEIS to which the commenter refers.

DFW-206: Both the DEIS and the Final EIS are based upon best available information existing at the time of the preparation of these documents. Information will be updated during subsequent phases of the project, should an alternative be authorized by Congress. Text has not been revised.

DFW-207: Discussion of the New Zealand mud snail and Quagga mussel was updated in the Fisheries and Aquatic Ecosystems Technical Report and included in the EIS Chapter 11, “Fisheries and Aquatic Ecosystems.”

DFW-208: There have been previous review and comment opportunities on documents related to the SLWRI. At this time we are responding to questions submitted specifically for the public DEIS. Many modifications to the SLWRI have been made pursuant to previous reviews of the various documents related to the project formulation process and Reclamation is not required as part of the NEPA process to review all previous comments on project related documents.

Additionally, while the spring-run Chinook salmon in that spawn in the Sacramento River between Keswick Dam and Red Bluff Pumping Plant may be of questionable genetic integrity, they are still considered as spring-run Chinook salmon by DFW and other resource agencies while conducting annual spawner estimates (see Grand Tab Table at http://www.calfish.org/LinkClick.aspx?fileticket=wXbihOvQ7JU%3d&tabid=213&mid=524). Also, the Sacramento River within this reach is

included in the designated critical habitat for spring-run Chinook salmon. In a Fisheries Technical Team meeting in Red Bluff on July 5, 2007, NMFS stated that regardless of the actual number of spring-run present in the Sacramento River, the Recovery Plan, critical habitat, and AFRP goals require that Reclamation must include protective measures for spring-run Chinook salmon, and therefore need to include spring-run Chinook salmon in the analysis.

Please refer to Master Comment Response DSFISH-1, "SALMOD Model for Sacramento River Chinook Salmon."

DFW-209: Reclamation concurs that SALMOD is only used to support technical analyses of anadromous fish populations in the SLWRI planning process. SALMOD is not appropriate for addressing other environmental concerns, such as quagga mussels. Additionally, redd dewatering is one of the mortality factors calculated and quantified in SALMOD as Incubation Mortality. SALMOD can, however, be useful in providing information useful in managing each run, whether individually or together by showing which conditions benefit or impact each run.

With respect to responding to the Departments previous letter, there have been previous review and comment opportunities on documents related to the SLWRI. At this time we are responding to questions submitted specifically for the public DEIS. Many modifications to the SLWRI have been made pursuant to previous reviews of the various documents related to the project formulation process and Reclamation is not required as part of the NEPA process to review all previous comments on project related documents.

DFW-210: These results are based on a modeling exercise to show the general increase of each alternative based on simulated data. Putting a date in the Executive Summary table is inappropriate because other factors have strong influence over Chinook salmon populations as well, as shown by the fact that the AFRP goals still have not been met.

DFW-211: Reclamation will respond when the full text of the comment is provided by the commenter.

DFW-212: The commenter asserts that the statement "the majority of increased firm yield…would be for south-of-Delta agricultural and M&I deliveries" should be reworded to include refuge water supplies per CVPIA Section 3406 (d).

As shown in Chapter 6, "Hydrology, Hydraulics, and Water Management," Sections 6.3.3, "Direct and Indirect Effects" and 6.3.4, "Mitigation Measures" of the DEIS, while the impacts of the action

alternatives on south-of-Delta refuge water supplies would be either less than significant or beneficial so no mitigation would be needed, the majority of the average annual increase in firm (dry and critical year) water supplies would be for agricultural and M&I deliveries. The referenced statements in the DEIS are correct as written.

DFW-213: Please refer to Master Comment Response CVPIA-1, "Central Valley Project Improvement Act Firm Level 2 and Incremental Level 4 Refuge Water Supplies."

DFW-214: Text has been revised to reflect the recent developments in the 2008 USFWS and 2009 NMFS Biological Opinions in the Executive Summary, Chapter 3, "Considerations for Describing Affected Environment and Environmental Consequences," and Chapter 11, "Fisheries and Aquatic Ecosystems."

Please refer to Master Comment Response DSFISH-8, "National Marine Fisheries Service Recovery Plan, Anadromous Fish Restoration Program Doubling Goals and Biological Opinions."

DFW-215: Please refer to Master Comment Response CVPIA-1, "Central Valley Project Improvement Act Firm Level 2 and Incremental Level 4 Refuge Water Supplies."

DFW-216: The CNDDB and USFWS ES Database queries were updated in 2012 and 2011, respectively. This update is identified throughout the EIS and the Wildlife Resources Technical Report. The one reference in the text to a 2007 query was an inadvertent error in the text. Therefore, the queries are within the 5-year window and reflect current information.

DFW-217: Vernal pool habitat is discussed under Annual Grassland on page 1-30 of the Wildlife Resources Technical Report and is not mapped as a separate habitat type in the study area. There is no vernal pool habitat within, or adjacent to any of the inundation, relocation or restoration areas identified in Chapter 2, "Alternatives," of the EIS.

DFW-218: In the DEIS, this table displays the plant community and habitat types as classified in the CWHR and references those habitat types to an MSCS Habitat Type as part of the overall affected environment discussion.

DFW-219: In the DEIS, the acres in Table 1-2 and Table 1-3 in Chapter 1 of the Wildlife Resources Technical Report reflect the number of acres of habitat that would be inundated in the impoundment area and relocation areas, respectively. The impoundment area is the same as the inundation area. In the EIS, the size of relocation areas was revised and

the tables were updated. In addition, a total acreage value for each habitat type was added to these tables.

DFW-220: The current small scale map is adequate for the purposes of the Wildlife Resources Technical Report and Final EIS. If the SLWRI is authorized, additional planning documents would be prepared; at that point, additional graphics may be required to support various permitting and consultation efforts.

DFW-221: Revised oak woodland description on page 1-30 of the Draft Wildlife Resources Technical Report to add additional detail including associated plant and animal species.

DFW-222: While the upper McCloud arm is within the area subject to inundation and part of the project footprint, there are no known northern goshawk nest sites located within the area subject to inundation, relocation or restoration actions.

DFW-223: The Wildlife Resources Technical Report – Attachment 9, "Shasta Salamander Survey Report," contains information on Shasta salamander surveys including the level of survey effort, methods, and results. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-1, "Take and Loss of Habitat for the Shasta salamander," includes the analysis of impacts to Shasta salamander. The Wildlife Resources Technical Report Attachment 2, "Species Accounts for Special-Status Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study Area," was revised to enhance the discussion of Shasta salamander. In addition, The EIS was revised to enhance the impact analysis and mitigation measures in Section 13.3.5 for Shasta salamander.

DFW-224: The technical report does not include any discussion of impacts or mitigation; this is provided in the respective EIS chapters.

The Wildlife Resources Technical Report – Attachment 9, "Shasta Salamander Survey Report," contains information on Shasta salamander surveys including the level of survey effort, methods, and results. The Wildlife Resources Technical Report Attachment 2, "Species Accounts for Special-Status Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study Area," was revised to enhance the discussion of Shasta salamander. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-1, "Take and Loss of Habitat for the Shasta salamander," includes the analysis of impacts to Shasta salamander. In addition, The EIS was revised to enhance the impact analysis and mitigation measures in Section 13.3.5 for Shasta salamander.

DFW-225: The technical report does not include any discussion of impacts or mitigation; this is provided in the respective EIS chapters.

The Wildlife Resources Technical Report - Attachment 10, "Terrestrial Mollusk Survey Report," contains information on terrestrial mollusk surveys including the level of survey effort, methods, and results. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-12, "Impacts to Special-Status Mollusks (Shasta Sideband, Wintu Sideband, Shasta Chaparral, and Shasta Hesperian) and their habitat," includes the analysis of impacts to special-status terrestrial mollusks. In addition, the EIS was revised to enhance the impact analysis and mitigation measures in Section 13.3.5 for special-status terrestrial mollusks.

DFW-226: The Wildlife Resources Technical Report was revised to include this updated information on the distribution of Pacific fisher.

DFW-227: Chapter 2, "Alternatives," has been revised with respect to the project footprint. All resource chapters have been revised as applicable to reflect these revisions.

Potential effects of the alternatives on special-status wildlife species are discussed in Chapter 13, "Wildlife Resources."

DFW-228: Revised Table 1-5 to state that California Red-Legged Frog and Foothill yellow-legged frog could occur along the Sacramento River if suitable habitat is present. Additional California Red-Legged Frog site assessments were conducted for the river restoration sites under the technical guidance of the USFWS and in accordance with the USFWS Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog (U.S. Fish and Wildlife Service 2005). Due to the shelf life of protocol-level surveys for these species, USFWS has acknowledged that surveys would not be required at this point in the SLWRI planning process.

DFW-229: As discussed in Table 1-5 and on page 1-96 of the Wildlife Resources Technical Report, Swainson's hawk have the potential to occur within the study area and are known to occur within the Klamath Basin.

DFW-230: This section of the referenced technical report is titled Regulatory Framework and is intended to provide the basis for developing issues and addressing impacts considered in the EIS. The exclusion of the BLM and Mendocino National Forest land management plan sections in this section do not inhibit Reclamation from addressing impacts on lands managed by those agencies where appropriate. Several chapters of the EIS (e.g., Chapter 17, "Land Use") do incorporate

direction form these management plans as appropriate based on input and coordination from these federal agencies throughout the SLWRI planning process. Reclamation is unaware of similar plan guidance and direction for the other agencies identified in this comment; both DWR and CDFW have been participants in the SLWRI project coordination team for a number of years and this issue has not been raised previously to Reclamation.

DFW-231: The Wildlife Resources Technical Report Table A1-1 was updated and includes the correct MSCS species and special habitats.

DFW-232: As stated in the Wildlife Resources Technical Report: Attachment 2, "Species Accounts for Special-Status Species Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study area," the Shasta Lake purple martin population represents between 14-51 percent of the interior northern California population. The Wildlife Resources Technical Report- Attachment 3, "Breeding Bird Survey Results – Breeding Bird Surveys 2007-2014," includes information on purple martin surveys including the level of survey effort, methods, and results. The Wildlife Resources Technical Report was revised to enhance the discussion of purple martin. However, the Wildlife Resources Technical Report does not include an analysis of impacts to purple martin. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-7, "Impact on the Purple Martin and Its Nesting Habitat" includes the analysis of impacts to purple martin. In addition, The EIS was revised to enhance the impact analysis and mitigation measures in Section 13.3.5 for purple martin.

DFW-233: The Wildlife Resources Technical Report – Attachment 9, "Shasta Salamander Survey Report," contains information on Shasta salamander surveys including the level of survey effort, methods, and results. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-1, "Take and Loss of Habitat for the Shasta salamander" includes the analysis of impacts to Shasta salamander. The Wildlife Resources Technical Report Attachment 2, "Species Accounts for Special-Status Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study Area" was revised to enhance the discussion of Shasta salamander. In addition, the EIS was revised to enhance the impact analysis and mitigation measures in Section 13.3.5 for Shasta salamander.

DFW-234: As discussed on page 1-5 of the Wildlife Technical Report, descriptions of biological resources were derived primarily from the following sources:

- Shasta Lake Water Resources Investigation Mission Statement Milestone Report (Reclamation 2003)

- Shasta Lake Water Resources Investigation Initial Alternatives Information Report (Reclamation 2004)

- Chapter 3, "Biological Environment," in the Draft Shasta Lake Water Resources Investigation Plan Formulation Report (Reclamation 2007)

- U.S. Fish and Wildlife Service (USFWS) Endangered Species Database (USFWS 2011)

- The California Natural Diversity Database (CNDDB) (2012)

In addition, as discussed on page A4-1 of Attachment 4 to the Wildlife Technical Report, Black-crowned night heron is a MSCS species and is likely to breed along the Sacramento River corridor.

DFW-235: The state and federal lists of special-status species were updated as of March 2014.

DFW-236: Please refer to Master Comment Response GEN-1, "Comment Included as Part of the Record."

DFW-237: In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," the following impacts to species are addressed: Impact Wild-1, "Take and Loss of Habitat for the Shasta Salamander"; Impact Wild-4, "Impact on the American Peregrine Falcon"; Impact Wild-7, "Impact on the Purple Martin and Its Nesting Habitat"; Impact Wild-5, "Take and Loss of Habitat for the Bald Eagle"; and Impact Wild-18, "Impacts on Bank Swallow in the Primary Study Area Resulting from Modifications of Geomorphic Processes." The EIS was revised to enhance the impact analysis and mitigation measures in Section 13.3.5 for these species.

DFW-238: A response to this comment is not required under NEPA because the comment does not raise a significant environmental issue (NEPA Regulations 40 CFR Part 1503.4). Many comment authors expressed personal opinions, histories or experiences which are not appropriately addressed as part of the NEPA process. This comment will be included as part of the record and made available to decision makers before a final decision on the proposed project.

Throughout the DEIS, single maps were used wherever possible. In some instances, the study area was divided into multiple maps to show specific features and details that would not have been visible on a single map of the study area. Chapter 12, "Botanical Resources and Wetlands" of the DEIS is an example of an instance in which multiple maps were necessary. The EIS was not revised with respect to graphic scales.

DFW-239: The Wildlife Technical Report provides a description of each habitat type identified and analyzed in the EIS, including a description of the plants and animals that are typically associated with these habitat types.

Please refer to Master Comment Response GEN-4, "Best Available Information."

DFW-240: The technical report does not include any discussion of impacts or mitigation; this is provided in the respective EIS chapters.

The Wildlife Resources Technical Report – Attachment 9, "Shasta Salamander Survey Report," contains information on Shasta salamander surveys including the level of survey effort, methods, and results. The Wildlife Resources Technical Report Attachment 2, "Species Accounts for Special-Status Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study Area," was revised to enhance the discussion of Shasta salamander. However, the Wildlife Resources Technical Report does not include an analysis of impacts to Shasta salamander. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-1, "Take and Loss of Habitat for the Shasta salamander," includes the analysis of impacts to Shasta salamander. In addition, The EIS was revised to enhance the impact analysis and mitigation measures in Section 13.3.5 for Shasta salamander.

DFW-241: The technical report does not include any discussion of impacts or mitigation; this is provided in the respective EIS chapters.

The Wildlife Resources Technical Report – Attachment 9 (Shasta Salamander Survey Report) contains information on Shasta salamander surveys including the level of survey effort, methods, and results. Recent genetic studies have been incorporated in the technical memorandum. The Wildlife Resources Technical Report Attachment 2 Species Accounts for Special-Status Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study Area was revised to enhance the discussion of Shasta salamander. However, the Wildlife Resources Technical Report does not include an analysis of impacts to Shasta salamander. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-1, "Take and Loss of Habitat for the Shasta salamander," includes the analysis of impacts to Shasta salamander. In addition, the EIS was revised to enhance the impact analysis and mitigation measures in Section 13.3.5 for Shasta salamander.

DFW-242: The technical report does not include any discussion of impacts or mitigation; this is provided in the respective EIS chapters.

The Wildlife Resources Technical Report – Attachment 9, "Shasta Salamander Survey Report," contains information on Shasta salamander surveys including the level of survey effort, methods, and results. The Wildlife Resources Technical Report Attachment 2, "Species Accounts for Special-Status Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study Area," was revised to enhance the discussion of Shasta salamander. However, the Wildlife Resources Technical Report does not include an analysis of impacts to Shasta salamander. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-1, "Take and Loss of Habitat for the Shasta salamander," includes the analysis of impacts to Shasta salamander. In addition, the EIS was revised to enhance the impact analysis and mitigation measures in Section 13.3.5 for Shasta salamander. In coordination with the USFS, Reclamation conducted extensive reviews of subterranean habitat (known caves) in close proximity to Shasta Lake to assess impacts to cave resources. While there are several caves and other subterranean habitats currently subject to inundation, no additional caves or known subterranean habitat would be impacted by an action alternative.

DFW-243: The technical report does not include any discussion of impacts or mitigation; this is provided in the respective EIS chapters.

The Wildlife Resources Technical Report Attachment 2, "Species Accounts for Special-Status Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study Area," was revised to enhance the discussion of peregrine falcon. However, the Wildlife Resources Technical Report does not include an impact analysis for peregrine falcon or other birds of prey. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-4, "Impacts on the American Peregrine Falcon," and "Impact Wild-14, Impacts on Other Birds of Prey (i.e., red-tailed hawk and red-shouldered hawk)," includes the analysis of impacts to peregrine falcon and other birds of prey, respectively. In addition, the EIS was revised to enhance the mitigation measures in Section 13.3.5 for peregrine falcon and other birds of prey.

DFW-244: The technical report does not include any discussion of impacts or mitigation; this is provided in the respective EIS chapters.

The Wildlife Resources Technical Report Attachment 2, "Species Accounts for Special-Status Wildlife in the Shasta Lake and Vicinity Portion of the Primary Study Area," includes discussion of bald eagle and bald eagle habitat. In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-5, "Take and Loss of Habitat for the Bald Eagle," includes the analysis of impacts to bald eagle and it habitat. The EIS was revised to enhance the impact

analysis and mitigation measures in Section 13.3.5 for bald eagle. In addition, a Bald and Golden Eagle Management Plan will be developed if warranted with coordination from CDFW and USFWS.

DFW-245: The technical report does not include any discussion of impacts or mitigation; this is provided in the respective EIS chapters.

The Wildlife Resources Technical Report Attachment 3, "Breeding Bird Survey Results – Breeding Bird Surveys 2007-2014," includes information on purple martin surveys including the level of survey effort, methods, and results. The Wildlife Resources Technical report was revised to enhance the discussion of purple martin, In Chapter 13, "Wildlife Resources," of the EIS, Section 13.3.4, "Direct and Indirect Effects," Impact Wild-7, "Impact on the Purple Martin and its Nesting Habitat," includes the revised analysis of impacts to purple martin. In addition, the EIS was revised to enhance the mitigation measures in Section 13.3.5 for purple martin and its nesting habitat.

DFW-246: Potential impacts to resource areas are not discussed in the Draft Feasibility Report, nor are they discussed in the Technical Reports/Attachments.

The commenter is referring to the ADEIS which was released in 2008. At this time we are responding to questions submitted specifically for the public DEIS. Many modifications to the SLWRI have been made pursuant to previous reviews of the various documents related to the project formulation process and Reclamation is not required as part of the NEPA process to review all previous comments on project related documents.

Please refer to Master Comment Response EI-2, "Potential Impacts to Bank Swallow and Bank Swallow Habitat."

DFW-247: Comment noted.

Please refer to Master Comment Response EI-2, "Potential Impacts to Bank Swallow and Bank Swallow Habitat."

DFW-248: The editorial recommendations submitted by the comment author have been incorporated into the Water Quality Technical Report.

DFW-249: The editorial recommendations submitted by the comment author have been incorporated into the Water Quality Technical Report.

DFW-250: A response is not required under NEPA because the comment does not raise a significant environmental issue (NEPA Regulation 40 CFR Part 1503.4). This comment will, however, be

included as a part of the record and made available to decision makers before a final decision on the proposed project.

DFW-251: Please refer to Master Comment Response WQ-1, "Remediation of Abandoned Mines in the Shasta Lake Area."

DFW-252: The EIS has been updated to reflect information in the Basin Plan (as revised in 2011 by the CVRWQCB).

DFW-253: The editorial recommendations submitted by the comment author have been incorporated into the Water Quality Technical Report.

DFW-254: The editorial recommendations submitted by the comment author have been incorporated into the Water Quality Technical Report.

DFW-255: The editorial recommendations submitted by the comment author have been incorporated into the Water Quality Technical Report.

DFW-256: Reclamation has acknowledged and made the appropriate correction.

DFW-257: The editorial recommendations submitted by the comment author have been incorporated into the Water Quality Technical Report.

DFW-258: The editorial recommendations submitted by the comment author have been incorporated into the Water Quality Technical Report.

DFW-259: The editorial recommendations submitted by the comment author have been incorporated into the Water Quality Technical Report.

DFW-260: Reclamation determined that there were no abandoned mine features beyond the area associated with the Bully Hill mining complex that will be inundated.

DFW-261: The editorial recommendations submitted by the comment author have been incorporated into the Water Quality Technical Report.

DFW-262: Text not revised, per 2014 Omnibus Appropriations Bill, Public Law 113-76, signed on January 17, 2014, CALFED is authorized through 2015.

DFW-263: Text not revised, per 2014 Omnibus Appropriations Bill, Public Law 113-76, signed on January 17, 2014, CALFED is authorized through 2015.

DFW-264: Reclamation has acknowledged and made the appropriate correction with respect to suggested edit. At this point in the SLWRI planning process, it is premature to specifically discuss permitting

efforts; if the SLWRI is authorized, Reclamation would comply with applicable sections of the federal Clean Water Act.

DFW-265: The editorial recommendations submitted by the comment author have been incorporated into the Water Quality Technical Report.

DFW-266: The editorial recommendations submitted by the comment author have been incorporated into the Water Quality Technical Report.

DFW-267: The editorial recommendations submitted by the comment author have been incorporated into the Water Quality Technical Report.

DFW-268: The editorial recommendations submitted by the comment author have been incorporated into the Water Quality Technical Report.

DFW-269: The editorial recommendations submitted by the comment author have been incorporated into the Water Quality Technical Report.

DFW-270: Please refer to Master Comment Response GEN-1, "Comment Included as Part of the Record."

DFW-271: The editorial recommendations submitted by the comment author have been incorporated into the Water Quality Technical Report.

DFW-272: The editorial recommendations submitted by the comment author have been incorporated into the Water Quality Technical Report.

DFW-273: The editorial recommendations submitted by the comment author have been incorporated into the Water Quality Technical Report.

DFW-274: The editorial recommendations submitted by the comment author have been incorporated into the Water Quality Technical Report.

DFW-275: The editorial recommendations submitted by the comment author have been incorporated into the Water Quality Technical Report.

DFW-276: The editorial recommendations submitted by the comment author have been incorporated into the Water Quality Technical Report.

DFW-277: The referenced Draft Geologic Technical Report was prepared jointly by two Professional Geologists, Mr. Jim Fitzgerald (North State Resources, Inc.) and Ms. Heather Shannon (MWH). Mr. Fitzgerald prepared information for the Shasta Lake and Vicinity portion of the Primary Study Area. Ms. Shannon prepared information for the Upper Sacramento River (Shasta Dam to Red Bluff) portion of the Primary Study Area and the Extended Study Area. This report has been revised by Professional Geologists, Dr. Thomas Koler and Mr. Duncan Drummond (North State Resources, Inc.).

DFW-278: Chapter 4, "Geology, Geomorphology, Minerals, and Soils," and The Geologic Technical Report has been updated to include current references and updated information.

DFW-279: The referenced Geologic Technical Report and the related discussion in Chapter 4, "Geology, Geomorphology, Minerals and Soils," have been revised and updated by a Professional Geologist licensed to practice in California and reviewed by a P.E. The EIS and supporting appendices have been corrected to concur with the commenter's statement regarding the Battle Creek Fault.

DFW-280: Reclamation has acknowledged and made the appropriate clarification.

DFW-281: The technical report does not include any discussion of impacts or mitigation; this is provided in the respective EIS chapters.

Chapter 4, "Geology, Geomorphology, Minerals, and Soils," addresses erosional processes and how they may be affected by SLWRI actions, including inundation and associated shoreline erosion.

DFW-282: Comment noted. Text was revised to more clearly state the definition of the Alquist-Priolo Earthquake Fault Zoning Act and identify those Earthquake Fault Zones within Shasta County outside of the Shasta Lake and Vicinity portion of the Primary Study Area.

DFW-283: Recommendations submitted by the comment author have been incorporated into Chapter 4, "Geology, Geomorphology, Minerals, and Soils," Section 4.1.2, "Geologic Hazards." These recommendations have also been incorporated into the Geologic Technical Appendix, Section 1.1.2, "Geologic Hazards."

DFW-284: Recommendations submitted by the comment author have been incorporated into Chapter 4, "Geology, Geomorphology, Minerals, and Soils," Section 4.1.2, "Geologic Hazards." These recommendations have also been incorporated into the Geologic Technical Appendix, Section 1.1.2, "Geologic Hazards."

DFW-285: The editorial recommendations submitted by the comment author have been incorporated into the technical report.

DFW-286: The editorial recommendations submitted by the comment author have been incorporated into the technical report.

DFW-287: The editorial recommendations submitted by the comment author have been incorporated into the technical report.

DFW-288: The editorial recommendations submitted by the comment author have been incorporated into the technical report.

DFW-289: The technical report does not include any discussion of impacts or mitigation; this is provided in the respective EIS chapters.

Chapter 4, "Geology, Geomorphology, Minerals, and Soils," addresses erosional processes and how they may be affected by SLWRI actions, including inundation and associated shoreline erosion.

DFW-290: Reclamation has gathered information and performed focus studies to document resource conditions and evaluate the potential impacts of the range of alternatives developed through the SLWRI feasibility study. The methods used to evaluate the impacts of the alternatives were based upon Reclamation's standard practices and input from agencies and subject matter experts.

DFW-291: The editorial recommendations submitted by the comment author have been incorporated into the Botanical Resources and Wetlands Technical Report.

DFW-292: The acreage of relocation areas was updated in the Botanical Resources and Wetlands Technical Report.

DFW-293: The Botanical Resources and Wetlands Technical Report includes a technical memo in the appendix that provides a detailed description of the study design. The botanical surveys were conducted in general accordance with the technical methods prescribed by Nelson (1994). *Nelson, J.R. 1994. Rare Plant Survey Guidelines. In M.W. Skinner and B.M. Pavlick (eds.), Inventory of Rare and Endangered Vascular Plants of California. California Native Plant Society. Sacramento, California. In the event the SLWRI is authorized, Reclamation understands that addition surveys and investigations may be required to support permit and consultation requirements.

DFW-294: Impact acreages were corrected and updated in the Botanical Resources and Wetlands Technical Report.

DFW-295: The technical report does not include any discussion of impacts or mitigation; this is provided in the respective EIS chapters.

The total acreage was added to Table 1-2 in the Botanical Resources and Wetlands Technical Report. . This affected environment and impact analysis e was updated in Chapter 12, "Botanical Resources and Wetlands," of the EIS.

DFW-296: The scientific names were referenced the first time they appear in the body of the text in both the Botanical Resources and Wetlands Technical Report and the EIS chapter.

DFW-297: The study area included all areas where potential direct, indirect, and cumulative impacts could occur. This area is different for each resource area and is not a fixed or defined size. The species with the widest breadth of evaluation were vernal pool-associated species; vernal pool grasslands that were within 250 feet of the bank edge were evaluated for potential indirect effects to the hydrology of these pools that could result from project implementation. The species with the smallest width of evaluation were bank swallows, which occur in localized areas within and immediately adjacent to the river channel in eroded banks.

DFW-298: As stated in the Botanical Resources and Wetlands Technical Report on page 1-30, lines 41-43 and page 1-31, lines 1-5, sensitive plant communities addressed in the document include locally or regionally declining communities that are tracked in the CNDDB. This includes the communities ranked S1-S3, as these are communities tracked in the CNDDB. Mapped locations of these natural communities are shown in Figures 1-2a through 1-2f for the Shasta Lake and Vicinity portion and in Figures 1-3a through 1-3j for the Upper Sacramento River (Shasta Dam to Red Bluff). Potential project impacts on these vegetation communities, as well as natural communities that are considered sensitive for other reasons (e.g., all riparian and wetland communities), were addressed in Chapter 12, "Botanical Resources and Wetlands," Section 12.3.4, "Direct and Indirect Impacts," under Impact Bot-5, Impact Bot-7, and Impact Bot-14.

See Chapter 12, "Botanical Resources and Wetlands," Section 12.3.5, "Mitigation Measures," for mitigation measures associated with impacts (Mitigation Measure Bot-4, Mitigation Measure Bot-5, Mitigation Measure Bot-7, and Mitigation Measure Bot-14.)

DFW-299: Sensitive plant communities located in the impoundment area are shown in Figures 1-2a through 1-2f in the Botanical Resources and Wetland Technical Report. A discussion of CDFW special-status natural communities was added to the Regulatory Setting section on page 12-86 of Chapter 12, "Botanical Resources." Figures 1-3a through 1-3j have been removed from the Botanical Resources and Wetlands Technical Report that accompanies the EIS.

DFW-300: Figures 1-3a through 1-3j have been removed from the Botanical Resources and Wetlands Technical Report.

DFW-301: Corrections were made to the Botanical Resources and Wetlands Technical Report.

DFW-302: For the Final EIS, the text shown on page 12-84 of the DEIS has been clarified as follows: "Occurrences of special-status natural communities are included in the CNDDB; however, no new occurrences have been added to the CNDDB since the mid-1990s when funding for natural communities tracking was cut." The document does not rely on CNDDB occurrences to identify jurisdictional wetlands and other waters of the United States, waters of the state, or riparian communities that may be subject to jurisdiction under Section 1602 of the Fish and Game Code. CNDDB terrestrial natural community occurrences are provided as supplemental information to the wetland delineation and vegetation mapping completed in support of the project.

DFW-303: Sensitive plant communities located in the impoundment area are shown in Figures 1-2a through 1-2f in the Botanical Resources and Wetland Technical Report. A discussion of CDFW special-status natural communities was added to the Regulatory Setting section on page 12-86 of Chapter 12, "Botanical Resources." Figures 1-3a through 1-3j have been removed from the Botanical Resources and Wetlands Technical Report.

DFW-304: The Botanical Resources and Wetlands Technical Report Attachment 6 (Botanical Survey Report 2002-2014) includes information on Shasta snow-wreath (*Neviusia cliftonii*) and Shasta huckleberry (*Vaccinium sp.*) surveys.

Please refer to Master Comment Response CEQA-1, "CEQA Compliance."

DFW-305: The Botanical Resources and Wetlands Technical Report Attachment 6, "Botanical Survey Report 2002-2014," includes information on the botanical surveys including how many acres surveyed. Chapter 12, "Botany and Wetland Resources," provides a comprehensive discussion on impacts these resources.

DFW-306: The Botanical Resources and Wetlands Technical Report does not include an impact analysis. In Chapter 12, "Botanical Resources and Wetlands," of the EIS, Section 12.3.4, "Direct and Indirect Effects," Impact Bot-1: Loss of Federally or State Listed Plant Species and Impact Bot-3: Loss of USFS Sensitive, BLM Sensitive, or CRPR Species includes the analysis of impacts to special-status plant species. The Botanical Resources and Wetlands Technical Report Attachment 6, "Botanical Survey Report 2002-2014," includes information on the botanical surveys.

DFW-307: As described in the Botanical Resources and Wetlands Technical Report Attachment 6, "Botanical Survey Report 2002-2014," Reclamation conducted several focused botanical surveys addressing specific plant species that warranted additional work due to rarity and potential project impacts, specific habitat requirements that may have made previous botanical surveys insufficient, surveys for newly described species not included in previous survey efforts, or surveys for new, undescribed, species. These focused efforts included surveys for Shasta snow-wreath (*Neviusia cliftonii)* and Shasta huckleberry (*Vaccinium* sp. nov).

DFW-308: The Botanical Resources and Wetlands Technical Report Attachment 6, "Botanical Survey Report 2002-2014," includes information on the botanical surveys. Survey methods were described in the Botanical Survey Report.

DFW-309: A list of plant species observed was included in the Botanical Resources and Wetlands Technical Report Attachment 2, "List of Plant Species Observed in the Shasta Lake and Vicinity Portion of the Primary Study Area."

DFW-310: The Botanical Resources and Wetlands Technical Report was revised to enhance the discussion of Shasta snow wreath (*Neviusia cliftonii*). However, the Botanical Resources and Wetlands Technical Report does not include an analysis of impacts. In Chapter 12, "Botanical Resources and Wetlands," of the EIS, Section 12.3.4, "Direct and Indirect Effects," Impact Bot-1, "Loss of Federally or State Listed Plant Species," and Impact Bot-3, "Loss of USFS Sensitive, BLM Sensitive, or CRPR Species," includes the analysis of impacts to Shasta snow-wreath. The Botanical Resources and Wetlands Technical Report Attachment 6 (Botanical Survey Report 2002-2014) includes information on Shasta snow-wreath surveys and results.

DFW-311: The Botanical Resources and Wetlands Technical Report Attachment 6, "Botanical Survey Report 2002-2014," includes information on the number of Shasta snow-wreath locations.

DFW-312: The Botanical Resources and Wetlands Technical Report Attachment 6, "Botanical Survey Report 2002-2014," includes information on who conducted the Shasta snow-wreath surveys.

DFW-313: Acreage totals for the refined relocation areas are included in the EIS.

DFW-314: The Botanical Resources and Wetlands Technical Report was updated.

DFW-315: Please refer to Master Comment Response ESA-1, "Compliance with the Endangered Species Act."

DFW-316: The referenced text, "Project impacts on these species are not considered significant unless the species are known to have a high potential to occur within the area of disturbance associated with construction of the project" was written accurately and was not revised.

DFW-317: This paragraph was revised in the Botanical Resources and Wetlands Technical Report and the related chapter of the EIS.

DFW-318: Please refer to Master Comment Response GEN-1, "Comment Included as Part of the Record."

33.8.7 Delta Stewardship Council

DSC1

DELTA STEWARDSHIP COUNCIL
A California State Agency

980 NINTH STREET, SUITE 1500
SACRAMENTO, CALIFORNIA 95814
WWW.DELTACOUNCIL.CA.GOV
(916) 445-5511

September 30, 2013

Katrina Chow, Project Manager
U.S. Bureau of Reclamation, Planning Division
2800 Cottage Way
Sacramento, CA 95825-1893

RE: Staff Comments on Draft Environmental Impact Statement For the Shasta Lake Water Resources Investigation

Dear Ms. Chow:

Thank you for giving the Delta Stewardship Council (DSC) the opportunity to review and provide comments on the draft Environmental Impact Statement (EIS) for the Shasta Lake Water Resources Investigation, which proposes to raise Shasta Dam and carry out habitat enhancements for anadromous fish species. DSC staff has reviewed the draft EIS and herein submits its comments.

DSC1-1 By way of background, the California Legislature created the DSC in 2009 to adopt and implement a legally enforceable plan (Delta Plan) to further the achievement of the State's coequal goals of providing a more reliable water supply for California and protecting, restoring and enhancing the Delta ecosystem in a way that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place. As you know, federal now also incorporates the coequal goals (P.L. 112-074, Sec. 205). Although

DSC1-2 located upstream of the Delta, this project would impact California's coequal goals in several ways. Our comments below describe these impacts:

DSC1-3 Consistency with the coequal goals: The project objectives as stated in the EIS are consistent with the coequal goals. Evaluations by the Natural Resources Agency have reported that other actions under consideration to achieve the co-equal goals, such as the proposed Bay Delta Conservation Plan, will be more valuable if they are complemented by additional storage. We are, however, aware that the U.S. Fish and Wildlife Service[1] believes the EIS

DSC1-4 overstates the potential benefits of this project to anadromous fish, and that the Department of Fish and Wildlife has expressed concerns that the analysis is incomplete[2]. Both agencies

[1] U.S. Fish and Wildlife Service March; 7, 2013
[2] California Department of Fish and Wildlife; February 8, 2013

"Coequal goals" means the two goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place."
CA Water Code §85054

DSC1-4 CONTD have commented that dedicated cold water pool storage should be released to meet temperature requirements rather than for water supply purposes. We also are informed that DWR believes the alternatives identified the EIS may not comply with California Public

DSC1-5 Resource Code § 5093.542. We urge the Bureau to give due consideration to the comments provided by these agencies.

DSC1-6 Additional in-stream storage: The project would provide significant additional in-stream water storage upstream of the Delta. This could result in overall improvement in the reliability of water supplies diverted from the Delta, and could improve the average quality of the water in the Delta as well. The degree and extent to which these improvements occur would depend upon how the Central Valley and State Water Projects are operated, and would vary from year to year.

DSC1-7 Reduced flood damage along the Sacramento River: The USBR also plans to use the additional storage capacity to help reduce flood damage along the Sacramento River, which would help reduce peak flows and flooding potential in the Delta. Again, the actual effect would vary from year to year depending on rainfall patterns, other improvements to the Sacramento River Flood Control Project, and how the Central Valley and State Water Projects are operated. This enhanced flood management capacity will grow in value as California's climate changes.

DSC1-8 Meeting water quality goals for the ecosystem: Greater availability of water to meet ecosystem water quality goals in the Delta could have a beneficial effect on the Delta as well, depending on project operation. The project's increase in the cold water pool is intended to improve the survival of anadromous fish survival in the upper reaches of the Sacramento River. Additional water from the

DSC1-9 Shasta Reservoir could also be used for other environmental purposes in the Bay-Delta system (e.g. salinity control, especially during a Delta emergency).

DSC1-10 Finally, we note that one of the requirements of the NMFS Biological Opinion for salmon[3] is to explore "long-term passage prescriptions at Shasta Dam and re-introduction of winter-run into its native habitat in the McCloud and/or Upper Sacramento rivers." It appears that none of the alternatives address this issue. We recommend the final EIS specifically evaluate such alternatives. In addition, the final EIS should acknowledge that enlarging Shasta Reservoir would affect both the value of potential actions to improve fish passage at Shasta Dam and to re-introduce winter-run into the McCloud and/or Upper Sacramento rivers if the enlarged reservoir floods potential spawning and rearing areas upstream of the current reservoir.

[3] "Biological Opinion and Conference Opinion on the Long-term Operations of the Central Valley Project and State Water Project" page 275, bullet 1 (National Marine Fisheries Service, 2009).

Again, thank you for the opportunity to provide our comments on this EIS. Please contact Carl Lischeske at (916) 445-5891 if you need further information.

Sincerely,

Cindy Messer, Deputy Director

Responses to Comments from Delta Stewardship Council

DSC1-1: Comment noted.

DSC1-2: As subsequently stated by the commenter, SLWRI project objectives in the DEIS are consistent with California's coequal goals under the Delta Reform Act, and SLWRI action alternatives could provide benefits that would advance the coequal goals.

DSC1-3: Reclamation agrees that project objectives in the SLWRI EIS are generally consistent with the coequal goals of the 2009 Delta Reform Act of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem.

DSC1-4: CP4 and CP4A have a cold water pool allocation dedicated for fisheries benefits. This water is not dedicated for water supply purposes, but water supply benefits are incidental. As stated in Chapter 2, "Alternatives," "Of the increased reservoir storage space of CP4, about 378,000 acre-feet would be dedicated to increasing the supply of cold water for anadromous fish survival purposes. Of the increased storage space of CP4A, about 191,000 acre-feet would be dedicated to increasing the supply of cold water for anadromous fish survival purposes."

Please refer to Master Comment Response DSFISH-5, "Fish and Wildlife Coordination Act Report," Master Comment Response WSR-1, "Water Supply Demands, Supplies, and Project Benefits," and Master Comment Response ALTD-1, "Alternative Development – Water Supply Reliability."

DSC1-5: Please refer to Master Comment Response WASR-6, "Protections of the Lower McCloud River as Identified in the California Public Resources Code, Section 5093.542."

DSC1-6: Please refer to Master Comment Response GEN-1, "Comment Included as Part of the Record."

DSC1-7: Please refer to Master Comment Response GEN-1, "Comment Included as Part of the Record."

DSC1-8: A response is not required under NEPA because the comment does not raise a significant environmental issue (NEPA Regulation 40 CFR Part 1503.4). This comment will, however, be included as a part of the record and made available to decision makers before a final decision on the proposed project.

DSC1-9: Please refer to Master Comment Response DSFISH-4, "Maintaining Sacramento River Flows to Meet Fish Needs and Regulatory Requirements."

DSC1-10: Please refer to Master Comment Response ALTD-2, "Alternative Development- Anadromous Fish Survival," and Master Comment Response FISHPASS-1, "Fish Passage Above Shasta Dam."

33.8.8 Delta Stewardship Council

 DSC2

Fwd: Comment letter for USBR Shasta Lake project.

KATRINA CHOW <kchow@usbr.gov> Wed, Oct 23, 2013 at 1:07 PM
To: KATHLEEN DUNCAN <kduncan@usbr.gov>

Sent from my iPhone

Begin forwarded message:

From: "Ray, Dan@DeltaCouncil" <dan.ray@deltacouncil.ca.gov>
Date: September 30, 2013, 3:47:11 PM PDT
To: "Lischeske, Carl@Delta Council" <Carl.Lischeske@DeltaCouncil.ca.gov>, "'KChow@usbr.gov'" <KChow@usbr.gov>
Cc: "Messer, Cindy@DeltaCouncil" <cindy.messer@deltacouncil.ca.gov>, "Thomason, Christie@DeltaCouncil" <christie.thomason@deltacouncil.ca.gov>
Subject: RE: Comment letter for USBR Shasta Lake project.

DSC2-1 Good job. Thanks for sticking with this and getting it out.

From: Lischeske, Carl@Delta Council
Sent: Monday, September 30, 2013 3:28 PM
To: 'KChow@usbr.gov'
Cc: Messer, Cindy@DeltaCouncil; Thomason, Christie@DeltaCouncil; Ray, Dan@DeltaCouncil
Subject: FW: Comment letter for USBR Shasta Lake project.

Ms. Chow,

10/23/13 DEPARTMENT OF THE INTERIOR Mail - Fwd: Comment letter for USBR Shasta Lake project.

Attached are the Delta Stewardship Council staff comments on the subject project. Please call me if you have any questions.

Carl Lischeske

Lead Engineer

Delta Stewardship Council

(916) 445-5891

Responses to Comments from Delta Stewardship Council

DSC2-1: Please refer to Master Comment Response GEN-1, "Comment Included as Part of the Record."

33.8.9 Department of Water Resources

DWR

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY
EDMUND G. BROWN JR., Governor

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

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SEP 27 2013

SEP 26 2013

Ms. Katrina Chow
United States Department of Interior
Bureau of Reclamation, Mid Pacific Region
2800 Cottage Way, MP-700
Sacramento, California 95825

Dear Ms. Chow:

DWR-1 The Department of Water Resources (DWR) reviewed the Draft Environmental Impact Statement (DEIS) prepared for the Shasta Lake Water Resources Investigation by the Bureau of Reclamation (Reclamation) dated June 2013. The DEIS evaluates the potential effects associated with modifying Shasta Dam and enlarging Shasta Lake. DWR and Reclamation operate the State Water Project (SWP) and Central Valley Project (CVP), respectively, consistent with the terms and conditions of their water rights permits and all other regulatory requirements. The two agencies coordinate operations of the SWP and CVP to meet their joint regulatory obligations consistent with the terms of the "Agreement Between The United States of America And The State of California For Coordinated Operations Of The Central Valley Project And The State Water Project" (COA) dated November 24, 1986. Implementation of a project to modify Shasta Dam and Lake has the potential to impact the operations of the State Water Project (SWP) and joint operations under the COA.

Prior to implementing any project to enlarge Shasta Dam and Lake, Reclamation must work with DWR to evaluate any potential impacts to SWP operations and address any issues related to joint operations under the COA.

Sincerely,

Robert B Cooke

Robert Cooke, Chief
State Water Project Analysis Office

cc: (See attached list.)

cc: Mr. Ray Sahlberg
U.S. Department of Interior
Bureau of Reclamation
2800 Cottage Way
Sacramento, California 95825

Mr. Terry Erlewine, General Manager
State Water Contractors
1121 L Street, Suite 1050
Sacramento, California 95814-3944

Responses to Comments from Department of Water Resources

DWR-1: Reclamation will work with DWR on coordinating the long-term operation of any project authorized as part of the SLWRI program. It is not anticipated that there would be adverse impacts to the SWP. However, as the SWP and CVP are jointly operated, refinements to the Coordinated Operations Agreement (COA) or other operational effects will be addressed if a project is authorized.

33.8.10 Sacramento River Conservation Area Forum

SRCAF

From: **Dolan, Jane@DWR** <Jane.Dolan@water.ca.gov>
Date: Mon, Jul 29, 2013 at 2:01 PM
Subject: question re: Shasta Lake Feasibility Study EIS
To: "kchow@usbr.gov" <kchow@usbr.gov>

Hello Katrina Chow,

My staff and I have been reading the EIS of the Feasibility Study to ascertain an items of concern or interest to the Sacramento River Conservation Area Forum Board of Directors.

SRCAF-1

In several places within the EIS the Sacramento River Conservation Area Forum (Forum) is identified as "participating in the development of the Riverine Ecosystem Mitigation and Adaptive Management Plan." Further the 1989 Upper Sacramento River Fisheries and Habitat Management Plan is referenced many times. How is a 24+ year old plan considered in formulating the mitigation and conservation measures. And, what role is expected of the Forum in this outcome?

In my two plus years as Executive Director of the Forum, I have no knowledge of contact between the USBR and the Forum. Can you assist me in understanding the mitigation measures in the EIS that identify the Forum as a participant? Specifically the role that is expected? How was the Forum's interest, and our ability to have the resources to be able to participate determined?

Thank you,

Jane Dolan
Executive Director
Sacramento River Conservation Area Forum
2440 Main Street, Red Bluff, CA 96080
jane.dolan@water.ca.gov
telephone (530) 528-7411
cell phone (530) 518-1011

Responses to Comments from Sacramento River Conservation Area Forum

SRCAF-1: The mitigation measure Bot-7 in Chapter 12, "Botanical Resources and Wetlands," Section 12.3.5, "Mitigation Measures," specifically states that Mitigation and Adaptive Management Plan will be consistent with the Senate Bill 1086 program such that the years of effort and experience by the Sacramento River Conservation Area Forum would be incorporated to aid in successfully mitigating project impacts on riparian habitats in a coordinated manner that supports its efforts. It is the intent of Reclamation to include the Forum in correspondence regarding the Mitigation and Adaptive Management Plan, but no other official role has been designated for the Forum. Reclamation intends to include cooperating agencies and any other interested parties in the development of the Mitigation and Adaptive Management Plan.

33.8.11 Sacramento River Conservation Area Forum

SRCAF2

September 30, 2013

TO:
Ms. Katrina Chow
Project Manager
Bureau of Reclamation
Planning Division
2800 Cottage Way
Sacramento, CA 95825-1893
Kchow@usbr.gov

FROM:
Jane Dolan, Executive Director
Sacramento River Conservation Area Forum
(Forum)
2440 Main Street
Red Bluff, CA 96080
jdolan@water.ca.gov

RE:
Comments on Shasta Lake Water Resources Investigation Draft Environmental Impact Statement

Thank you for the opportunity to submit these comments on the Shasta Lake Water Resources Investigation Draft Environmental Impact Statement (DEIS).

SRCAF2-1 In regards to the Riverine Ecosystem Mitigation and Adaptive Management Plan that is proposed as a mitigation measure for multiple impacts, we agree that the impact of altered flow regimes to riparian and wetland communities should be mitigated. We also agree that the plan should be developed in coordination with the Sacramento River Conservation Area Forum (Forum) and state and federal resource agencies. We have been unable to get a response from Bureau staff to our inquiries to determine the level of participation envisioned for the Forum and the resources available to support that participation. We request a response to our inquiries to determine if the role envisioned for the Forum is appropriate for our organization.

SRCAF2-2 We are challenged to submit comments to the DEIS, as the nature and extent of mitigation envisioned for the project is ambiguous. The DEIS is vague on the extent of the actions that might occur under the Riverine Ecosystem Mitigation and Adaptive Management Plan, including

Page 1 of 3
Shasta Lake Investigation EIS
Forum Comment letter
9/30/13

SRCAF2-2 CONTD: the standard by which potential actions would be "feasible" under dam operating procedures. Therefore, it is unclear whether the implementation of such a plan would offset the impacts of the altered flow regimes on the river.

SRCAF2-3: It is also unclear how these actions might cause indirect impacts on agricultural economies and local communities on the river. The mitigation measure uses the three goals of the plan as performance standards. However, these standards are imprecise and do not convey the nature or extent of the actions proposed as mitigation. We believe that such a plan is more appropriately prepared as part of the DEIS and not prior to construction.

SRCAF2-4: The DEIS notes that details are not available about the opportunities for off-site mitigation and a comprehensive mitigation strategy is under development. It further states that future documents will include a discussion of mitigation for loss of habitat through preservation and enhancement. However, the document provides no indication of the type or magnitude of the habitat loss.

SRCAF2-5: If this strategy will include acquisition of privately owned lands along the Sacramento River, then the project may impact agricultural economies and county tax bases along the river.

SRCAF2-6: More detail and another opportunity to provide public input should be provided before the Bureau issues a final EIS.

SRCAF2-7: For example, is Mitigation Measure Geo-2 (restore degraded aquatic habitat in the vicinity of the impact) part of the comprehensive off-site strategy? As part of that strategy or not, the measure is unclear as to where the proposed compensatory mitigation would take place. If the restoration takes place on Sacramento River agricultural lands, then restoration could impact agricultural economies and the tax base of local communities and this impact should be included in the analysis.

SRCAF2-8: In regards to impacts to Bank Swallow, the DEIS concludes for all alternatives that the project will not impact the species. No analysis is provided to support the "no impact" conclusion, other than a statement that summertime stage will not increase more than two inches.

The DEIS does not consider potential sociological impact to communities in the areas where restoration and acquisition for mitigation is proposed and agricultural land taken out of production.

SRCAF2-9: The draft EIS lacks sufficient detail to know the extent of the restoration and thus the extent of impacts on local communities. Many different governmental programs have converted agricultural lands to habitat and privately owned lands to public lands. Additional efforts are proposed for the future by other agencies and the DEIS should provide objective measurements of the needed mitigation lands. It is unclear whether sufficient land exists to be restored and what the impacts of that restoration might be without an understanding of the magnitude of the restoration and acquisition.

In summary, the DEIS lacks sufficient detail on mitigation to understand whether it is sufficient to offset impacts and whether implementation of mitigation will have adverse impacts on agricultural economies and local communities.

SRCAF2-10 This lack of detail is particularly apparent in the proposed off-site mitigation strategy and the Riverine Ecosystem Mitigation and Adaptive Management Plan. The DEIS should be revised before issuing a final EIS to provide objective measures (e.g. X acres of riparian) of the mitigation that is needed and to identify locations where that mitigation is to take place. Local stakeholders such as the Forum could then more clearly understand the nature and magnitude of proposed restoration on the river and provide informed and appropriate input.

SRCAF2-11 We appreciate the opportunity to provide these comments. We look forward to contact from your agency in regards to our participation in developing a Riverine Ecosystem Mitigation and Adaptive Management Plan.

Respectfully submitted via email,

Jane Dolan
Executive Director
Sacramento River Conservation Area Forum
2440 Main Street
Red Bluff, CA 96080
Telephone (530) 528-7411
Email: jdolan@water.ca.gov

Responses to Comments from Sacramento River Conservation Area Forum

SRCAF2-1: The mitigation measure Bot-7 in Chapter 12, "Botanical Resources and Wetlands," Section 12.3.5, "Mitigation Measures," specifically states that Mitigation and Adaptive Management Plan will be consistent with the years of effort and experience by the Sacramento River Conservation Area Forum and would be incorporated to aid in

successfully mitigating project impacts on riparian habitats in a coordinated manner that supports its efforts. It is the intent of Reclamation to include the Forum in correspondence regarding the Mitigation and Adaptive Management Plan, but no other official role has been designated for the Forum. Reclamation intends to include cooperating agencies and any other interested parties in the development of the Mitigation and Adaptive Management Plan.

SRCAF2-2: Please refer to Master Comment Response CMS-1, “EIS Mitigation Plan.”

SRCAF2-3: NEPA requires full disclosure of the potential effects of Federal actions and accompanying alternatives and possible mitigation. The mitigation measure Bot-7 in Chapter 12, "Botanical Resources and Wetlands," Section 12.3.5, "Mitigation Measures," describes a range of performance measures to mitigate identified impacts on riparian and wetland communities.

Mitigation Measure Bot-7 identifies specific actions (modification of dam operations and funding restoration actions) that will be included in the final plan to avoid and compensate for impacts on riparian and wetland communities such that a no-net-loss performance standard is met. Mitigation Measure Bot-7 also identifies the minimum measures that will be implemented to avoid, minimize, and compensate for impacts. Details about off-site mitigation opportunities in the primary study area are not yet available. Potential mitigation lands containing comparable wetland and special-status species habitat comparable to those that would be affected by the action alternatives have been identified and specific details about how these lands may be used for mitigation will be discussed in detail in future documents and be subject to review by regulatory agencies and the public. The DEIS follows standard NEPA procedures in disclosing impacts on biological resources and providing mitigation measures that Reclamation will be required to implement following future Congressional authorization of an action alternative. The intent of this document is to identify measures that are flexible and adaptable so they can be implemented effectively by Reclamation to respond to direct and indirect impacts on riparian and wetland habitats resulting from the project. The mitigation measure clearly states that a mitigation and adaptive management plan will be implemented and will include implementation funding mechanisms and criteria. On pages ES-32 and ES-33, the DEIS identifies implementation of a comprehensive revegetation plan and a comprehensive mitigation strategy to minimize potential effects on biological resources as environmental commitments. Therefore, the document properly identifies the probability of implementation of mitigation as required under NEPA and commits Reclamation to implementing this mitigation.

As stated under Mitigation Measure Bot-7, page 12-165, lines 13-15, feasible measures in this context are those that are not in conflict with applicable laws, agreements, and regulations, or with the purpose of the project. As stated on page 12-165, lines 24-34, appropriate restoration actions are those that do any of the following: 1) enhance connectivity of river side channels (e.g., by modifying the elevation of secondary channels, remnant oxbows, or meander scars); 2) expand the river meander zone at selected locations (e.g., by assisting in funding projects that meet this objective); 3) increase floodplain connectivity (e.g., by assisting in funding projects that meet this objective); 4) control and remove nonnative, invasive plant species from riparian areas to shift dominance to native species; 5) create riparian and wetland communities (e.g., through plantings); and 6) increase shaded riverine aquatic habitat (e.g., through plantings). Because the plan would be developed in coordination with USFWS, NMFS, CDFW, and the Sacramento River Conservation Area Forum, each of these entities would have the opportunity to provide input on the appropriateness and feasibility of restoration actions.

SRCAF2-4: Please refer to Master Comment Response CMS-1, “EIS Mitigation Plan.”

SRCAF2-5: As discussed in the Real Estate Appendix to the DEIS, specific mitigation lands will be identified during final design and permitting following Congressional Authorization.

SRCAF2-6: Please refer to Master Comment Response NEPA-1, “Sufficiency of the EIS.”

SRCAF2-7: Mitigation Measure GEO-2 in EIS Chapter 4, "Geology, Geomorphology, Minerals, and Soils," Section 4.3.5, "Mitigation Measures," refers to mitigation to take place only in the Lake Shasta and Vicinity portion of the primary study area (as described in Chapter 1, "Introduction," Section 1.3, "Setting and Location") and not downstream from the dam on the Sacramento River.

SRCAF2-8: Please refer to Master Comment Response EI-2, “Potential Impacts to Bank Swallow and Bank Swallow Habitat.”

SRCAF2-9: As stated in Chapter 2, “Alternatives,” Reclamation will implement commitments to avoid, reduce, mitigate, and/or compensate for adverse socioeconomic and related environmental impacts to the extent practicable, including –but not limited to– compliance with the policies and provisions set forth in the Uniform Relocation Assistance and Real Property Acquisition Policies Act for all relocations. Please see response to SRCAF2-1, SRCAF2-3, and SRCAF2-5.

SRCAF2-10: Please see the response to SRCAF2-3.

SCRAF2-11: Comment noted.

33.8.12 Shasta Regional Transportation Agency

SRTA

From: **Ellen Talbo** <etalbo@srta.ca.gov>
Date: Fri, Aug 9, 2013 at 5:15 PM
Subject: Shasta Investigation Request for Information
To: "wmoore@usbr.gov" <wmoore@usbr.gov>

SRTA-1

Name=Ellen Talbo
e-mail=srta@srta.ca.gov
title=Associate Transportation Planner
Organization=Shasta Regional Transportation Agency
address=1255 East Street, Ste. 202
city=Redding
state=CA
zip=96001
comments=
=Send

Responses to Comments from Shasta Regional Transportation Agency

SRTA-1: Please refer to Master Comment Response MAILINGLIST-1, "Addition or Change to the Mailing List."

33.8.13 State Water Resources Control Board

SWRCB

CALIFORNIA Water Boards

EDMUND G. BROWN JR. GOVERNOR

MATTHEW RODRIQUEZ SECRETARY FOR ENVIRONMENTAL PROTECTION

State Water Resources Control Board

SEP 17 2013

In Reply Refer to:
KDM: A005625

Ms. Katrina Chow
U.S. Bureau of Reclamation
2800 Cottage Way, MP-700
Sacramento, CA 95825-1893

Dear Ms. Chow:

COMMENTS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) FOR SHASTA LAKE WATER RESOURCES INVESTIGATION

SWRCB-1 The State Water Resources Control Board (State Water Board), Division of Water Rights (Division) has reviewed the DEIS for the Shasta Lake water resources investigation. The DEIS evaluates six alternatives for raising the existing Shasta Dam and Shasta Reservoir. Shasta Reservoir has a current capacity of 4,550,000 acre-feet (af). The maximum enlargement under consideration is 634,000 af. Thus, the maximum enlarged capacity would be 5,184,000 af.

Division staff evaluated U.S. Bureau of Reclamation's water rights for Lake Shasta to determine whether the project would require an additional appropriative water right. The Lake Shasta water rights for consumptive use purposes (irrigation, domestic, municipal, etc.) are under permits issued on Application 5626, 9363 and 9364. Power generation is covered by the permits issued on Applications 5625 and 9365.

SWRCB-2 The table below lists the Lake Shasta water rights (storage element only). The water rights for Lake Shasta are subject not only to individual water right limits, but also to combined right limits. The table below also lists the water rights (storage element only) that are part of the combined right limitation terms:

Water Right	Uses	Storage Quantity In af per annum (afa)	Project
5625	Power	3,190,000	Shasta
9365	Power	1,303,000	Shasta
	Total Power	*4,493,000*	

5626	Municipal, etc.	3,190,000	Shasta
9363	Municipal, etc.	310,000	Shasta
9364	Municipal, etc.	1,303,000	Shasta
	Total Municipal, etc.	*4,803,000*	
9366	Municipal, etc.	0	Contra Costa Canal
9367	Municipal, etc.	0	Contra Costa Canal
9368	Municipal, etc.	0	Tracy Pumping Plant

SWRCB-2 CONTD.

The combined right limits are as follows:

- The total amount of water to be appropriated by direct diversion and by storage under permits issued pursuant to Applications 5626, 9363, 9364, 9366, 9367 and 9368 shall not exceed 6,500,000 af per annum of which not in excess of 3,450,000 afa shall be by direct diversion. The maximum combined rates of direct diversion and rediversion of stored water shall not exceed 22,200 cubic feet per second.

- Applications 5625, 5626 and 9363: The total amount of water to be appropriated by storage under permits issued pursuant to Applications 5625, 5626, 9363, 9364 and 9365 shall not exceed 4,493,000 afa.

- Applications 9364 and 9365: The total amount of water to be appropriated under permits issued pursuant to Applications 5625, 5626, 9363, 9364 and 9365 shall not exceed 4,493,000 afa.

SWRCB-3

The water rights authorize specific quantities for collection to storage annually. The rights do not state the size of the facility that the water will be stored in. Consequently, provided that Reclamation does not exceed its diversion limits, additional water rights are not needed based solely on enlargement of the reservoir size. Should Reclamation determine that it will annually collect more than a combined total of 4,493,000 af to storage in the enlarged reservoir, or exceed the other annual combined right limits listed above, an additional appropriative right is required.

SWRCB-4

Table 6-5 provides simulated average end-of-month Shasta Reservoir Storage under existing condition (2005) and future condition (2030). This data indicates that the reservoir retains more water in storage under all alternatives considered in the DEIS than under the no action alternative. Inasmuch as carryover storage remains in the reservoir, new collection of a like amount would not occur. Nonetheless, Division staff requests that Reclamation provide documentation that the project can be operated under existing rights. To document this, Division staff requests that Reclamation provide a monthly diversions table covering the modeling period of the DEIS showing that the reservoir enlargement project can be operated within the annual combined right limits listed above. Thank you in advance for the information.

If you require further assistance, please contact Katherine Mrowka at (916) 341-5363 or by email at kathy.mrowka@waterboards.ca.gov. Written correspondence or inquiries should be addressed as follows: State Water Resources Control Board, Division of Water Rights, Attn: Katherine Mrowka, P.O. Box 2000, Sacramento, CA, 95812-2000.

Sincerely,

ORIGINAL SIGNED BY:

Katherine Mrowka, Senior
Permitting and Licensing Section
Division of Water Rights

cc: Valentina Cabrera-Stagno
Environmental Protection Agency
Cabrera-Stagno.Valentina@epa.gov

Stephanie Skophammer
Environmental Protection Agency
SKOPHAMMER.STEPHANIE@EPA.GOV

Lisa Holm
U.S. Bureau of Reclamation
Lisa M Holm (lholm@usbr.gov)

Ray Sahlberg
U.S. Bureau of Reclamation
rsahlberg@usbr.gov

Responses to Comments from State Water Resources Control Board

SWRCB-1: Comment noted.

SWRCB-2: Comment noted.

SWRCB-3: Thank you for your comment related to potential future water rights appropriations or changes in existing water rights that may be required if the SLWRI is implemented.

Please refer to Master Comment Response WR-1, “Water Rights.”

SWRCB-4: Reclamation will provide the information requested by the State Board at the appropriate stage in project planning.

Please refer to Master Comment Response WR-1, “Water Rights.”

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