

12.2 Federal Agencies



United States Department of the Interior

BUREAU OF RECLAMATION
Central California Area Office
7794 Folsom Dam Road
Folsom, California 95630-1799

IN REPLY REFER TO:

CC-410
ENV-1.10

OCT 29 2001

Colonel Michael J. Conrad, Jr.
District Engineer, Sacramento District
U.S. Army Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

Subject: Draft Supplemental Plan Formulation Report/Environmental Impact Statement/Environmental Impact Report (SEIS/EIR), American River Watershed, California, Long-Term Study

Dear Colonel Conrad:

Thank you for the opportunity to comment on the Draft Supplemental Plan Formulation Report/Environmental Impact Statement/Environmental Impact Report (SEIS/EIR) for the American River Watershed, California, Long-Term Study. We offer the following comments:

(1) The document, in particular the summary and conclusions, needs to give the decision-makers a more complete understanding of the performance of the various alternatives, including the National Economic Development (NED) Detention Dam (Auburn Dam) Plan, so they are fully informed when they make the decision.

While not specifically stating as much, the document implies that some of the Folsom Dam raise alternatives meet the community goal of obtaining a 200-year level of protection. In the Summary, Section S.1.2, on page S-2, it states, "The system does not meet the community goal, as adopted by the Sacramento Area Flood Control Agency (SAFCA) and the Reclamation Board, of achieving at least a 200-year level of flood protection (lowering the flood risk to an annual exceedance probability of 1-in-200 or less)." The statement in the parentheses leads the reader to believe that an annual exceedance probability of 1-in-200 is the same as a 200-year level of flood protection. This is reinforced to the reader in the Summary, Section S.1.3, on page S-4, where it states, "The objective of the Reclamation Board and SAFCA is to provide a high level of protection appropriate for a large metropolitan area by lowering the flood risk to an annual exceedance probability of 1-in-200 or less." In the Engineering Appendix, Part C. "Hydraulics," "Risk Based Analysis and Wave Runup Analysis," Section 6.A, on page 7, it clearly states, "It is important to note that the expected exceedance, or it's inverse, the recurrence interval, should not be equated to the level of protection." This should be made clear to the reader in the summary and the main document.

USBR-1

The summary then goes on to provide only the annual exceedance probability for each of the alternatives. For example, for Alternative 3, the seven-foot dam raise, it states that the plan "would reduce the probability of flooding in Sacramento from a 1-in-164 chance to a 1-in-213 chance in any year." This gives the reader the impression that this alternative provides the 200-year level of protection the community desires. However, the summary also needs to include the "Reliability" of the system to pass the 200-year storm. Section 5.3.5 (page 5-15) indicates that Alternative 3 only has a 63.5 percent chance of passing the 200-year event. The summary and conclusions need to also make this clearly understood.

The "Reliability" of the NED Detention Dam Plan should also be clearly shown in the summary, conclusions, and the main document so that the decision makers understand what they are selecting. In the Economics Appendix, Table 11, the Original NED 545,000 acre-foot Detention Dam Plan has a 94.5 percent chance of passing the 200-year event. The decision makers should be fully aware that they are considering a Folsom Dam Raise Plan with a 63.5 percent chance of passing the 200-year flood event instead of the Detention Dam Plan that has a 94.5 percent chance of passing a 200-year flood event. The performance of the two plans is not the same. The way the document is presented now, the difference in the performance is not readily apparent. The decision makers should be fully informed.

USBR-1
(Cont.)

Section 5.3.5 (page 5-15) states, "The conditional non-exceedance (i.e. no levee failure) for the 200-year storm in Sacramento is about 63.5 percent. Most readers are not going to understand what this is saying. This needs to be clarified. The explanation of "Reliability" in the Engineering Appendix is clearer and could be used in the main report to help explain it.

(2) The document clearly identifies SAFCA as the local sponsor responsible for paying for increased operation, maintenance, replacement, repair, and rehabilitation (OMRR&R) costs. Since this document is also a SAFCA document, Reclamation considers this a commitment by SAFCA that it will be responsible for the increased OMRR&R costs.

USBR-2

(3) Reclamation supports efforts to identify cost-sharing partners that would contribute towards constructing a permanent bridge at Folsom Dam instead of the temporary bridge being proposed as part of the study. The permanent bridge is the only scenario that makes sense.

USBR-3

However, since the document is presenting a temporary bridge alignment, this alignment needs to avoid impacting Reclamation's operation and maintenance of the dam facilities, as was stated in the document. There would be some relocation required with the temporary bridge alignment presented in the report. While the costs of these relocations may be small relative to the overall project, they should be identified and included in the cost estimate.

(4) Ecosystem Restoration Alternative 13 includes automation of the existing temperature shutters on the penstocks at Folsom Dam. The existing shutter system is outdated, inefficient and needs to be automated. Additionally, there are approximately 50,000 acre-feet of cold water currently not accessible by through the existing shutter system. During the final design, any improved shutter system on the penstocks should examine ways to access that pool of cold water.

USBR-4

In the Environmental Appendix, Attachment 5, there is a copy of the report titled "Ecosystem Restoration for Fisheries Resources through Water Temperature Reduction in the Lower American River." In response to that report, we are enclosing with this letter another design option that has previously been provided to Jones and Stokes, the author of the report.

USBR-5

impacts were identified, the assumption is that it would be done without lowering the reservoir. You may want to make this clearer. Also, there did not appear to be a cost in the estimate for some type of cofferdam or bulkhead. Based on what is happening on Folsom Dam Outlet Modifications, this could be a large cost item.

USBR-13
(Cont.)

(5) In Section 9.4.4, "U.S. Fish and Wildlife Service Recommendations," one of the recommendations states, "Develop a monitoring and adaptive management program to monitor vegetation around Folsom Reservoir over the life of the project." If this recommendation is accepted, it will have to be carefully worked out who will fund and be responsible for this program, and how it will be integrated with the existing land and vegetation management.

USBR-6

- All the dam raise alternatives include replacing the existing spillway gates. It was not stated in the main report or Engineering Appendix if the reservoir had to be lowered, or how the work would be done without affecting the reservoir level. Since no impacts were identified, the assumption is that it would be done without lowering the reservoir. You may want to make this clearer. Also, there did not appear to be a cost in the estimate for maintaining the lake level while replacing the spillway gates. This should probably be included, even if it is just for placing and moving the stop-logs in the spillway bays.

USBR-14

(6) We will be sending the Corps a separate letter, which will provide more information on our dam safety program at Folsom Lake.

USBR-7

- In Section 9.2.1, "Related Flood Control Activities Affecting the American River System," a description of the Folsom Dam Bridge Appraisal Report is included twice, once on page 9-7, and again on page 9-9.

USBR-15

Some additional comments are as follows:

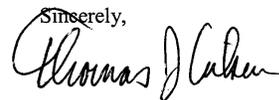
- For all the dam raise alternatives in Chapter 5.0 it states, "The construction staging areas would be located immediately adjacent to the landside of the existing embankment dams and dikes." A similar statement is made in the Engineering Appendix, Part A.3 under the description of each of the alternatives. However, in Section 7.5.5, on page 7-36, it states, "Staging areas would either be located within the inundation zone of the reservoir or at an adequate distance so as not to conflict with private land uses." The plates in the Engineering Appendix, Part 4 show some of the staging areas located on the landside of the dams and dikes, and some on the waterside. These should be modified so they are consistent.

USBR-8

- In the Engineering Appendix, Part C, "Specialized Hydraulics Analysis," Plates 3 and 5 are not legible.

USBR-16

If you have any questions, please contact Rick Johnson at (916) 989-7181 (TDD 989-7285).

Sincerely,


Thomas J. Aiken
Area Manager

- In Section 5.1.2, on page 5-2, it states that the flood warning system will be accomplished in summer 2001. It has not been done yet, so this needs to be updated.

USBR-9

- In some locations in the Engineering Appendix, specifically in Parts F and G, the reference is to an 8.5-foot dam raise plan. These should be modified to make them consistent with the rest of the report.

USBR-10

Enclosure

- In the Engineering Appendix, Part F. "Structural", Section 4. "Description of Structural Features/Modifications," Sub-section 1 is titled "New Permanent Downstream Bridge." In this section it states, "A new permanent high-level bridge located downstream of the dam would carry traffic in lieu of the road on top of the dam." This is not consistent with the rest of the report.

USBR-11

cc: Mr. Bob Childs, Project Manager
Sacramento District
U.S. Army Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

- In the Engineering Appendix, Part D. "Geotechnical", on pages 4 and 5 of the section titled "Folsom Dam Borrow Investigations," there are several paragraphs that just have the statement "To be completed."

USBR-12

Ms. Veronica Petrovsky
Sacramento District
U.S. Army Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

- Alternative 2, the 3.5-foot Folsom Dam raise, includes lowering the existing spillway. It was not stated in the main report or Engineering Appendix if the reservoir had to be lowered, or how the work would be done without affecting the reservoir level. Since no

USBR-13

Mr. Peter D. Rabbon, General Manager
The Reclamation Board
1416 Ninth Street, Room 1601
Sacramento, California 95814-5594

Mr. F.I. Hodgkins, Executive Director
Sacramento Area Flood Control Agency
1007 7th Street, Fifth Floor
Sacramento, California 95814

Enclosure

Proposal: Modernization of Folsom Penstock Intake Temperature Shutters

Function of Proposal

Improve efficiency and operation of the penstock Temperature Control Device (TCD).

Recommended Action for the proposal

Continue evaluation of the proposal, giving it a high priority.

Detailed Description of the Proposal

- While retaining the present shutters and guides, automate the TCD operation so that either Folsom or Central Valley Operations personnel could change the shutter locations in minutes without shutting down the power plant.
- Provide a system that could form a 26-foot high opening anywhere in the shutter stack on 13-foot increments. Every shutter could be connected individually to a lifting mechanism and lifted with all shutters above it as a unit.
- All shutters and all lifting mechanisms could be removed for maintenance, without divers, using a single crane at the top of the dam.

The shutter lifting system conceived by the Function Analysis Team consisted of a 182-foot long lifting shaft consisting of fourteen each 13-foot long sections for each existing shutter stack. The shaft would be fabricated from 12-inch wide flange beams. The shaft would have latches, which could connect to all of the 9 slightly modified existing shutters in a stack. The Shaft would be located on the lakeside of the shutters and held to them by supports attached to the shutters. These supports would permit the shaft to slide through them. A hydraulic winch, mounted on top of the existing superstructure deck, would lift the shaft.

Hydraulic cylinders, located on the shaft and controlled from a hydraulic control board on top of the dam, would activate selected latches. The latches would be designed to stay latched if any load was present and they would fail in the latched position. Any failure of the latching system to move the latches into the correct shutter positions would activate a lock out of the hydraulics and would initiate an alarm. The latches would be designed to carry all 9 shutters on a single latch if this condition was to occur. To reduce the chance of this occurrence, the latching system would be designed to lift the shutters with a 1/4-inch space between them thus assuring that each latch lifted only one shutter.

The shaft system would be constructed so that it and the shutters could be raised as a unit and disassembled in 13-foot lengths on top of the dam.

Assessment of the Proposal

The importance of this proposal became more apparent during the spring and summer of 2001 when the temperature-monitoring program in Lake Natoma was fully functional. The temperatures indicated that when the top three shutters were lifted on May 21, a sudden 5-degree F. temperature decrease occurred in Lake Natoma, which eliminated

most of the epilimnion layer of warmer water throughout the lake for a period of 2 to 3 weeks. It would be desirable to make more gradual changes in the withdrawal layers of Folsom Lake in order to maintain the epilimnion layer in Lake Natoma rather than flushing it downstream.

In a report prepared by Jones and Stokes, dated August 1, 2001 entitled "Ecosystem Restoration for Fisheries/Aquatic Resources through Water Temperature Reduction in the Lower American River", modernization of the Folsom Dam shutters was selected as the best approach to achieving Lower American River temperature objectives. In the report, a reduction in mortality rates of salmon alone was estimated to be between 45% and 64% when efficient operations for releasing cold water from Folsom Reservoir, through modernized shutters, were incorporated.

In a report prepared by HDR Engineering, Inc., dated July 2001 entitled "Technical Memorandum—Folsom Dam Temperature Shutters Study of Alternatives", a shutter system using 5 slide gates in 5 separate tracks using hoists to move the gates, was selected as the best alternative for modernizing the Folsom shutters. In the report, the estimated cost for construction only of the preferred alternative was \$10,356,300 not including contingencies.

A comparison between the HDR proposed modified shutter system and the one presented in this report, would show significant differences in the design. Further investigation and a comparison of these designs should be accomplished prior to proceeding with any design.

USBR Denver Hydraulics Laboratory performed velocity testing in front of Folsom number 1 penstock intake in June 2001. It was determined that existing computer modeling techniques could very closely simulate the velocity distribution pattern and therefore the release temperatures. Specifically, the Corp. of Engineers one-dimensional model "SELECT" was used. The use of SELECT or other similar models could prove to be very useful to Folsom and CVO personnel in optimizing and determining the release temperatures of any given shutter configuration.

Advantages of the Proposal

- Conserving the cold-water pool in Folsom lake, and using it efficiently to optimize temperatures in the American River is the desired intent of this proposal, by providing a more flexible shutter operation with more gradual changes to the withdrawal levels.
- Modifying the shutter lifting system only and leaving the existing guide system intact would provide all the required improvements without redesigning and restructuring the entire shutter guide system.
- It is expected that the overall cost of the proposal would be lower than a complete restructuring of the guide and trash rack systems.
- Keeping the shutters in one track would keep leakage at a minimum.

USBR-5
(Cont.)

- Using hydraulics to activate the latches and the lifting system enables all changes to the shutters to occur remotely with minimal or no on-site personnel involvement.
- Keeping the shutters in one track reduces the likelihood of debris becoming entangled in the structure, as would be the case in the adjacent passing guides of multiple track systems.

Disadvantages

- Modifications do not reach the lowest level cold-water pool below the penstocks.
- Debris interference in the guides or between shutters could prevent shutters from fully closing or from moving. In the proposal, an alarm would be initiated and the latches would not release in this condition until over-ridden manually.
- The proposal does not include relocating the trash racks to the lake side of the shutters, although this could be accomplished at greater expense.
- In order to select an alternate shutter setting, the shutters would have to be lowered all the way for a short duration not to exceed 15 minutes, thus releasing some warm water through the one stack of shutters and also requiring the generating units to be operated below 75% power when a single stack of shutters is fully lowered.
- Under water components, such as hydraulic cylinders and latches, will require more maintenance than the existing system of shutters. A design permitting quick disassembly of the system and which uses corrosion resistant materials is a must.
- Hydraulic fluids used under water could cause environmental concerns. A use of environmentally safe hydraulic fluid is recommended.
- Cost is high enough to possibly require multiple funding sources and/or Congressional approval (see Cost Estimate below).

USBR-5
(Cont.)

Cost Estimate

Further analysis and design details are required to determine an accurate cost estimate.

Using the Technical Memorandum "Folsom Dam Temperature Shutters—Feasibility Report/Engineering Appendix" prepared by HDR dated August 2001 as a guide for costs, the estimated first costs of this proposal would be \$5 to \$6 million not counting contingencies. Note that the existing trash racks are not moved in this estimate.

Tasks Required to Implement the Proposal

- Continue temperature monitoring of Folsom Lake, Nimbus Lake and the Lower American River and publish the information in usable format for use by the community, designers, biologists and other key players in 2002.
- Analyze the structural strength, and establish size of components.
- Determine the construction feasibility and availability of components.
- Prepare a 40% design of the structural and hydraulic components.
- Obtain an engineers cost estimate to implement the proposal.
- Do a cost comparison between the proposal and other similar existing proposals.

- Review the design with the public, and all key players.
- Decide which proposal will be constructed.
- Obtain funding to complete the design.
- Complete design and prepare contract documents
- Review final design documents.
- Obtain funding to construct the modifications.
- Prepare NEPA documentation.
- Plan all timeframes for construction.
- Coordinate construction window with all affected interests.
- Obtain all permits to construct.
- Construct.
- Test the shutter for function and control prior to use in the spring of the year.
- Monitor the first years use and establish optimum temperature control operations.

USBR-5
(Cont.)

12.2.1 USBR – U.S. Department of the Interior, Bureau of Reclamation, Thomas J. Aiken (October 29, 2001)**Response to Comment USBR-1**

The final report clarifies the flood protection and risk offered by the flood control alternatives. The text in the draft report could be misleading; as to characterize Alternative 3, as providing a 200-year level of flood protection implies this plan will always contain the 1-in-200-year flood. Alternative 3, Seven-Foot Dam Raise/482-Foot Flood Pool Elevation, does reduce the risk of flooding to a 1-in-213 chance in any year (or 0.0047 percent chance of flooding). Another measure of risk is the “conditional probability of design non-exceedance,” that is, for a given event, what is the probability that the levees will hold? With Alternative 3 in place, there would be approximately a 64 percent chance that the 1-in-200-year event would be contained (not exceed the system’s capacity). Conversely, there is a 36 percent chance that flooding would ensue from this event. Thus, the Corps’ risk analysis expresses the ability of a flood control system to pass a given frequency flood as a probability due to uncertainties about the flood control system and the size of the flood. Conditional probability of design non-exceedance was reported in the draft report, but is more prominently displayed in the final report summary, alternative analyses, and conclusion. A third measure of risk and uncertainty is equivalent long-term risk. This is the probability of exceedance (flooding) over a specified time period. With Alternative 3, there would be a 5 percent chance of flooding over a 5-year period, and a 21 percent chance of flooding over a 50-year period. Long term risk is more prominently displayed in the final report.

Further studies on upstream detention were not done as part of this evaluation, but costs and benefits of a 545,000 acre-foot dam were updated. Since there is an interest in comparing the alternatives studied with upstream detention, the costs, benefits, and resultant flood risk of Alternative 3 will be shown in summary tables along with figures for the other alternatives.

Response to Comment USBR-2

The non-Federal sponsor, Reclamation Board, will assume responsibility for operating, maintaining, replacing, repairing, and rehabilitating (OMRR&R) the project or completed functional portions of the project, including mitigation features without cost to the government, in a manner compatible with the project’s authorized purpose and in accordance with applicable Federal and state laws and specific directions prescribed by the government in the OMRR&R manual and any subsequent amendments thereto. Operations and maintenance (O&M) will include protecting the channels, levees, and other flood control works from future encroachment or obstruction, including sedimentation and vegetation, that would reduce their flood-carrying capacity or adversely affect the proper functioning or efficient operation and maintenance of the project works. O&M will also include monitoring the status of completed mitigation and providing periodic reports on its condition, and providing repairs and replacement if needed, pursuant to the mitigation plan.

If a Folsom Dam raise project were implemented, the Bureau would continue to operate and maintain the existing portions of the dam that it has responsibility for today. The non-

Federal sponsor would enter into an agreement with the Bureau as necessary to facilitate its OMRR&R activities and prevent effects on their respective OMRR&R responsibilities.

Also as part of OMRR&R for a Folsom Dam raise project, the non-Federal sponsor must mitigate for any significant loss of vegetation or damage to recreational facilities attributable to inundation in the operational flood pool created by the project. To determine flood effects, the sponsor will periodically conduct a survey of the vegetation along the perimeter of Folsom Lake that lies in the operational flood pool. If flooding occurs, the effect on vegetation and recreational facilities will be assessed and the sponsor will implement appropriate mitigation. These and other requirements are included in the plan selection and implementation chapter of the Final SPFR/EIS/EIR.

Currently, the Reclamation Board is expected to be the non-Federal sponsor. However, no legal commitment is made by this document. When the Corps and non-Federal sponsor sign a Project Cooperation Agreement (PCA), there will be a legally-binding agreement that includes the O&M responsibilities.

Response to Comment USBR-3

If the Folsom Dam Enlargement Plan were constructed, it would require Folsom Dam Roadway to be closed. This action would have subsequent significant traffic impacts. The study included a “taking” analysis and there is no legal compensation requirement. However, mitigation for traffic impacts is economically justified using a least-cost temporary construction bridge. During construction, traffic would be routed to this bridge. After construction, the traffic would be rerouted to the top of the dam and the bridge would be dismantled. The bridge could remain if a local entity willing to be responsible for operations and maintenance is identified.

The possibility of the local community and Congress authorizing a more costly bridge such as a two-lane expandable bridge or a four-lane bridge is discussed in the 2002 American River Long-Term Study. A more costly bridge would be made part of the recommended plan if local interests were willing to pay the cost of the upgrade. Local agencies, such as the City of Folsom and Placer and El Dorado Counties, are aware of the proposed bridge and the option to fund an upgrade to a permanent full service bridge. A bridge sponsor so far has not been identified.

All relocation costs associated with the temporary construction bridge will be included in the final document (Temporary Construction Bridge Relocation Costs = \$75,000) for relocation of the south spillway access road.

Response to Comment USBR-4

The analysis of the feasibility of automating the existing temperature shutters on the penstocks at Folsom Dam acknowledges that the existing system is inefficient and, therefore, any modifications would need to address existing structural deficiencies as well as future structural design and construction. Additionally, the approximate 50,000 acre-feet of cold water that is

currently inaccessible was addressed during the plan formulation of the temperature shutter automation with the consideration that was given to installation of up to three elephant trunks that would extend to this lower elevation coldwater pool to extract needed cold water during periods of increased demand. The analysis of this management measure concluded that it is uncertain whether the installation of up to three elephant trunks is a technologically-viable measure. The analysis of this measure is fully documented in Volume II, Attachment 5, "Ecosystem Restoration for Fisheries Resources," pages 31-32.

Response to Comment USBR-5

The Corps and local sponsors intend to continue placing a high priority on the modernization of the Folsom Dam penstock intake temperature control shutters as has been suggested by the Bureau. The information provided in this report is sufficient to demonstrate there are cost-effective benefits that can be achieved by improving the shutter mechanisms. The Corps will work closely with the Bureau during our detailed design phase to develop the most cost-effective method of accomplishing the improvements.

Response to Comment USBR-6

If the recommended plan is approved by Congress, development of the proposed monitoring and adaptive management plan for vegetation around Folsom Reservoir would be closely coordinated with Bureau, the State Department of Parks and Recreation, and other interested parties. Funding would be provided as part of the operation and maintenance of the project.

Additional detail regarding the monitoring and adaptive management plan for the inundation area around Folsom Reservoir is provided in Section 7.8.5 of the Final SPFR/EIS/EIR and on page I-38 of the Draft Fish and Wildlife Coordination Act Report. Chapter 5.0 of the Final SPFR/EIS/EIR has been expanded to include more detailed discussion of the responsibilities of the Corps and local sponsor to implement the monitoring and adaptive management plan.

Response to Comment USBR-7

Comment noted. The letter will be completed sometime in January 2002.

Response to Comment USBR-8

The text and plates have been modified to be consistent.

Response to Comment USBR-9

The text has been updated to reflect the projected completion date.

Response to Comment USBR-10

The text has been revised to reflect the seven-foot dam raise.

Response to Comment USBR-11

The text has been revised to reflect the current plan for a temporary bridge.

Response to Comment USBR-12

These sections have been completed.

Response to Comment USBR-13

The work would be done using a cofferdam and would not affect water supply operation. Additional work on this alternative would not be implemented because it is not the preferred alternative.

Response to Comment USBR-14

Replacement of the spillway gates is not anticipated to affect water supply operations. A cost has been added for placing and removing the stop logs.

Response to Comment USBR-15

The two descriptions of the “Folsom Dam Bridge Appraisal Report” in Section 9.2.1 have been combined in the Final SPFR/EIS/EIR.

Response to Comment USBR-16

The plates have been revised.



United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
1111 Jackson Street, Suite 520
Oakland, CA 94607

October 24, 2001

ER:01/880

District Engineer
Corps of Engineers, Sacramento District
1325 J Street
Sacramento, California 95814-2922

Dear Colonel Conrad:

The Department of the Interior (Department) has reviewed the Draft Supplemental Plan Formulation Report/Environmental Impact Statement/Environmental Impact Report (DEIR/EIS) for the American River Watershed, Long-Term Study, California. The following comments are provided for your use and information to assist your efforts in complying with the National Environmental Policy Act (NEPA).

GENERAL COMMENTS

The Department focused its review and comment on the Stepped Release Plan (Alternatives 5-8). As a result, we were unable to review and provide comments on either the Dam Raise Plan or the Ecosystem Restoration Plan. We recognize the Stepped Release Plan is not economically feasible (and thus has no Federal interest); however, we determined it was prudent to provide comments for the written record.

Therefore, the following specific comments are based on what we determine to be either incomplete or inaccurate analyses of the Stepped Release Plan in the DEIR/EIS.

SPECIFIC COMMENTS

Volume I: Integrated Document, Dam Raise Plan (Alternatives 1-4): No comments due to time constraints.

Stepped Release Plan (Alternatives 5-8)

Page S-9, Alternative 5: Stepped Release to 160,000 cfs, Strengthening of Existing Levee along the Lower American River, line 4: This paragraph states that "erosion protection on approximately 6 miles of levee slope would be accomplished." However, we are not aware of any erosion protection occurring in this area as part of this alternative. It is our understanding that erosion protection would be placed on about 5.7 river miles for the 180,000 cfs plan.

Page S-10, Alternative 5: Stepped Release to 160,000 cfs, last paragraph: The last two lines of this paragraph state: "This alternative is not economically feasible; thus, there is no Federal interest in this plan." We understand that this is true, but it contradicts information in Table 4-2, page 4-25, that states the status of this alternative is "retained as an alternative."

Page S-10, Alternative 6: Stepped Release to 160,000 cfs and New Outlet at Folsom Dam, last paragraph: The last two lines of this paragraph state that "This alternative is not economically feasible; thus, there is no Federal interest in this plan." Again, we understand this is true, but it contradicts information in Table 4-2, page 4-25, that states the status of this alternative is "retained as an alternative."

Page S-11, Alternative 7: Stepped Release to 180,000 cfs, last paragraph: The last two lines of this paragraph state that "This alternative is not economically feasible; thus, there is no Federal interest in this plan." Again, we understand this is true, but it contradicts information in Table 4-2, page 4-25, that states the status of this alternative is "retained as an alternative."
Page S-11, Alternative 8: Stepped Release to 160,000 and 7-Foot Dam Raise/482-Foot Flood Pool Elevation: This alternative is listed differently than in Table 4-2 which titles it "Stepped Release to 160,000 cfs and Throttle Objective Release Back to 115,000 cfs." Please clarify or resolve this discrepancy in the final document.

Page 8 of 28, Table S-2, section 7.7, Fisheries, last sentence "Resource/Effect" column before "Operation-related effects.": The sentence concerning the resource/effect that states "Adversely affect fish habitat within the Sacramento and Yolo Bypasses as a result of the loss of vegetation caused by activities associated with the construction of flood control improvements adjacent to..." is incomplete. Also, we disagree that no mitigation would be required.

In the U.S. Fish and Wildlife Service's (FWS's) draft Fish and Wildlife Coordination Act (FWCA) report (USFWS 1997), we analyzed impacts that would occur to Shaded Riverine Aquatic (SRA) Cover at the Howe Avenue Bridge Raising site (for the 180,000 cfs plan), and to seasonal freshwater marsh and open water in the Yolo Bypass and Delta Sloughs from construction of slurry walls, seepage stability berms, and lime treatment that would temporarily impact aquatic organisms (for the 160,000 cfs and 180,000 cfs plans).

Within the American River at the Howe Avenue Bridge Raising site, SRA Cover that would be removed could impact the Sacramento splittail and delta smelt, both Federally listed species. These impacts would need to be addressed through section 7 of the Endangered Species Act.

Within the Yolo Bypass and Delta Sloughs, construction activities would entail in-water work at several of the sites. At the larger drainage canals (e.g., Shag Slough, Cache Slough, Lookout Slough, etc.), fish species that may be adversely impacted include American shad, black crappie, bluegill, largemouth bass, smallmouth bass, striped bass, and sturgeon.

Construction activities could cause erosion and sedimentation problems, temporarily degrading water quality and possibly causing immediate mortalities to existing aquatic life. Increases in turbidity and water temperature (loss of streamside vegetation) would occur to the detriment of aquatic species, including benthic macroinvertebrates, in both immediate and downstream areas. Recovery of these benthic populations, major components of the aquatic food chain base, would depend greatly on the degree to which the bank substrate and in-stream habitat would be altered, and the level of maintenance that would occur.

USDOI-3

USDOI-4

USDOI-5

USDOI-6

USDOI-7a

USDOI-7b

USDOI-7c

USDOI-7d

USDOI-1

USDOI-2

Your agency would also need to coordinate with the National Marine Fisheries Service regarding anadromous fish species that could be impacted by project activities, such as Central Valley steelhead, winter-run chinook salmon, and Central Valley spring-run chinook salmon, and consult on any additional species covered by the Magnuson-Stevens Fishery Conservation and Management Act.

USDOI-7e

Page 10 of 28, Table S-2, section 7.8, Vegetation, last sentence in "Resource/Effect" column before "Operation-related effects." We do not agree that adversely affecting "common natural vegetation communities along the lower American River, the Yolo and Sacramento Bypasses, the Sacramento River, and the Delta Sloughs as a result of activities associated with the construction of flood control improvements" would have "less than significant effects" and would require no mitigation. In the FWS's draft FWCA report, we analyzed several cover-types that would be impacted and that would require mitigation, including riparian woodland, oak woodland, seasonal freshwater marsh, open water, agricultural lands (rice), and upland herbaceous habitats (160,000 cfs and/or 180,000 cfs plans).

USDOI-8

Page 2-46, Lower American River, Sensitive Wildlife Habitats: SRA Cover should be included in this section. SRA Cover is a unique, nearshore aquatic zone of importance to fish and other wildlife occurring where riparian vegetation overhangs or protrudes into a stream or river channel. This cover-type, which provides shade, cover, and other important attributes, is scarce in the project areas, with only occasional occurrences where shrubs or trees are present in the slough channels.

USDOI-9

Page 2-47, Lower American River, Special Status Wildlife Species: This section lists invertebrates, a reptile, and birds, but fails to list plants, amphibians, fish and mammals. At the least, the Sacramento splittail and delta smelt could be adversely impacted by the Howe Avenue Bridge raising construction activities with the 180,000 cfs plan.

USDOI-10

Page 2-49, Downstream of the American River, Special-Status Wildlife Species: This section lists invertebrates, reptiles, and birds, but fails to list plants, amphibians, fish and mammals. Again, at the least, the Sacramento splittail and delta smelt could be adversely affected by construction activities in the hydraulic mitigation area (both Sacramento and Yolo Bypasses, and Sacramento-San Joaquin Delta) with the 160,000 cfs and 180,000 cfs plans.

USDOI-11

Page 4-21, Increase Objective Releases through Levee Modifications, Environmental Issues and Concerns, Special-Status Species, paragraph 1: This paragraph states that "Increasing the conveyance capacity of the Lower American River and the Yolo and Sacramento Bypasses would require excavating material from borrow sites, improving levees, and constructing levees and floodwalls", then lists only three species that could be adversely affected: the valley elderberry longhorn beetle (VELB), giant garter snake, and Swainson's hawk. Special status species including the Sacramento splittail, delta smelt, and bald eagle could also be impacted, and these should be discussed in this section.

USDOI-12

Page 5-22, section 5.5.2, Plan Components, Lower American River, Raise and Strengthen Existing American River Levees, paragraph 3 (for the 160,000 cfs plan): This paragraph states that "Erosion protection would be placed along 5.8 miles of the levees so the levees could withstand the higher flow velocities associated with this plan." It was our understanding that this erosion protection would be placed for the 180,000 cfs plan, not the 160,000 cfs plan.

USDOI-13

Page 5-24, section 5.5.2, Plan Components, Lower American River, Borrow Sites (for the 160,000 cfs plan): According to information received from your staff, these are the three borrow site locations for the hydraulic mitigation portion of the 160,000 cfs plan: Port of Sacramento (two sites), Grand Island (two sites), and the Sacramento Bypass.

USDOI-14

Page 5-24, section 5.5.2, Plan Components, Lower American River, Construction Staging Areas (for the 160,000 cfs plan): According to information received from your staff, these are the staging area locations for the hydraulic mitigation portion of the 160,000 cfs plan: Sutter Slough (two sites), Steamboat Slough (three sites), and Yolo Bypass (three sites).

USDOI-15

Page 5-34, section 5.7.2 Plan Components, Lower American River Borrow Sites (for the 180,000 cfs plan): We respectfully disagree that the borrow sites would be the same as under Alternative 5. Although the borrow sites for the hydraulic mitigation area would be the same, for the lower American River levee modifications, one borrow site would be located between Bradshaw Road and Happy Lane, south of Highway 50.

USDOI-16

Page 5-34, section 5.7.2 Plan Components, Lower American River Construction Staging Areas (for the 180,000 cfs plan): We respectfully disagree that the staging areas would be the same as under Alternative 5. Although the staging areas for the hydraulic mitigation area would be the same, for the lower American River levee modifications, 24 sites have been located by the Corps (see USFWS 2001).

USDOI-17

Page 7-66, section 7.7.8, Alternative 5: Stepped Release to 160,000 cfs, Construction-Related Effects, Yolo and Sacramento Bypasses: Among other language in this section, we respectfully disagree that: "Construction activities in the Yolo Bypass, Sacramento Bypass, Sacramento River, and Delta sloughs are not expected to directly affect fish habitat because levee construction would be limited to the landside of the levees or would not require in-water work", and that "There would not be any adverse effects to special-status fish species or EFH [essential fish habitat] because no riparian vegetation or in-water habitat would be disturbed."

USDOI-18

As discussed above, construction of seepage/stability berms, slurry wall, and lime treatment could cause erosion and sedimentation problems, temporarily degrading water quality and possibly causing immediate mortalities to existing aquatic life. Increases in turbidity and water temperature (loss of streamside vegetation) would occur to the detriment of aquatic species, including benthic macroinvertebrates, in both immediate and downstream areas.

Page 7-67, paragraph 1, lines 6-8 and throughout the document: These lines state: "This [mitigation measures] includes construction of 141 acres of wetlands at Egbert Tract, located in the lower portion of the Yolo Bypass. The wetlands would compensate for potential effects on fish, including Delta smelt and splittail." It is premature to discuss actual compensation acres for Federally listed species; we will address this concern during section 7 (Endangered Species Act) consultation with the U.S. Fish and Wildlife Service.

USDOI-19

Page 7-68, section 7.7.10, Alternative 7: Stepped Release to 180,000 cfs, sentence 1: We respectfully disagree that: "Construction- and operation-related effects on fish habitats and special-status species in the Lower American River under Alternative 7 would be similar to those described for Alternative 5." The impacts for the 180,000 cfs plan would be much greater, as they would include: (1) modifications of lower American River levees (12.6 river miles of levee raising; 5.7 river miles of levee strengthening; 2.5 river miles of new levees; and 2.7 river miles of new floodwalls), and (2) raising bridges (Howe Avenue and Guy West).

USDOI-20

Page 7-69, section 7.7.10, Alternative 7: Stepped Release to 180,000 cfs, Construction-Related Effects, bullet #2: We respectfully disagree that: "There would not be any adverse effects to special-status fish species or EFH because no riparian vegetation or in-water habitat would be disturbed." This has already been discussed above. SRA Cover would be impacted at the Howe Avenue Bridge Raising site, and large Delta Slough Canals, etc. would be impacted by construction activities, which would cause potential impacts to listed fish species.

USDOI-21

Page 7-77, Table 7-11, Alternatives 5-7 and footnote "c.": It is premature and possibly incorrect to say that "there are no operation-related effects identified under this stepped release alternative"(see footnote c to this table). In the draft FWCA report (USFWS 2001), we stated that currently, there is a without-project risk that operation of the baseline Folsom Dam facilities could result in additional disturbance or loss of both spawning gravels and SRA Cover during a flood larger than the 140-year event. The Stepped Release Plan would involve relatively frequent peak outflows of 145,000 cfs or more every 10 years, much more than the existing condition.

Although only a small, 0.5 mile portion of the spawning bed below Nimbus Dam is fully armored by large cobbles, a larger section below it is "in the green" (i.e., in motion) at 115,000 cfs (Ayres 2001). Because of this condition, we speculate that the larger and more frequent outflows associated with the Stepped Release Plan could cause more substantial armoring, extensive gravel loss, and significant grade loss. We further expect there to be additional impacts of these stepped flows to SRA Cover and riparian resources in specific areas already identified at risk of erosion by Ayres (1997).

USDOI-22

Although some of these have since been variously treated by berms and rock toe due to high bank work indices, others with intermediate indices (or new sites) might be significantly impacted by the 145,000-180,000 cfs flows associated with stepped release. The baseline risk, the frequent high outflows of the Stepped Release Plan, and the physical impacts related to hydraulic mitigation are all associated with potential adverse impacts of the Stepped Release Plan.

Page 7-83, Mitigation Measure V-8: Compensate for loss of 48.2 acres of riparian woodland (for 180,000 cfs plan): The first sentence states that: "The Corps will compensate for the loss of riparian woodland by developing 67.8 acres of replacement riparian woodland." Per the Habitat Evaluation Procedures (HEP) that the FWS completed, only 49.8 acres would be needed: 31.8 acres for the lower American River levee modifications, bridge raising, and utilities modifications, and 18.0 acres for the hydraulic mitigation area. It appears that an additional 18.0 acres have been incorporated into the total. Please clarify or correct this in the final document.

USDOI-23

Page 7-95, section 7.9.10, Alternative 7: Stepped Release to 180,000 cfs, Construction-Related Effects: This section mentions that there would be impacts to VELB habitat, cliff swallows, and bank swallows, but neglects to discuss potential impacts to the Sacramento splittail, delta smelt, bald eagle, and giant garter snake.

USDOI-24

Page 8 of 28, Table 7-20, section 7.7, Fisheries, last "Resource/Effect" before "Operation-related effects.": Refer to for page 8 of 28, Table S-2, section 7.7, Fisheries. Refer to comments for page 10 of 28, Table S-2, section 7.8, Vegetation.

USDOI-25

Stepped Release Plan (Alternatives 5-8), Tables 1A-1 and 1A-2: These tables list plants, invertebrates, amphibians, reptiles, birds, and mammals, but fail to list fish species that would be found in the project areas.

USDOI-26

Attachment 4, Biological Data Report, page 6-4, Direct Effects, Alternatives 5-7: Stepped Release Plans, paragraph 1: We respectfully disagree that: "No major in-water construction activities are anticipated. Therefore, no direct effects associated with construction activity within splittail spawning or rearing habitat would result." In the hydraulic mitigation area, there are several sites where ditches and canals would be either relocated or temporarily impacted by placement of drain rock or pre-cast "double T's" to form working surfaces in them. These activities could have direct effects on fisheries in these waterways. This was addressed in more detail in our comments on Volume I.

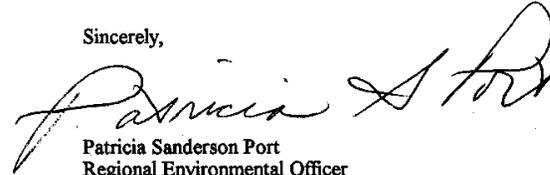
USDOI-27

Attachment 4, Biological Data Report, page 7-3, Direct Effects, Alternatives 5-7: Stepped Release Plans, lines 2-4: We respectfully disagree that: "No major in-water construction activities are anticipated. Therefore, no direct effects associated with construction activity within delta smelt habitat would result." Again, in the hydraulic mitigation area, there are several sites where ditches and canals would be either relocated or temporarily impacted by placement of drain rock or pre-cast "double T's" to form working surfaces in them. These activities could have direct effects on fisheries in these waterways. This was addressed in more detail in our comments on Volume I.

USDOI-28

We appreciate the opportunity to comment on the DEIR/EIS. Any questions regarding these comments can be directed to Caroline Prose at (916) 414-6575 or Doug Weinrich at (916) 414-6563 at the U.S. Fish and Wildlife Office in Sacramento, California.

Sincerely,



Patricia Sanderson Port
Regional Environmental Officer

cc: Director, OEPC, DC
FWS, CNO, Sacramento
FWS, Portland

LITERATURE CITED

Ayres (Ayres Associates). 1997. Final Report American and Sacramento River, California Project. Geomorphic, sediment engineering, and channel stability analyses. Prepared for the U.S. Army Corps of Engineers, Sacramento District. Contract No. DACW05-93-0045. Ayres Associates. Fort Collins, Colorado. December, 1997. ~200 pp. + appendices.

_____. 2001. Draft two-dimensional modeling and analysis of spawning bed mobilization: Lower American River. Prepared for the U.S. Army Corps of Engineers, Sacramento District. Project No. 33-0132.00. Ayres Associates. Fort Collins, Colorado. May, 2001. 16 pp. + appendices.

USFWS (U.S. Fish and Wildlife Service). 2001. Draft Fish and Wildlife Coordination Act Report for the American River Watershed Investigation, Long-Term Evaluation. Prepared for the U.S. Army Corps of Engineers, Sacramento District. Prepared by the Sacramento Fish and Wildlife Office, Sacramento, CA.

12.2.2 USDOl – U.S. Department of the Interior, Office of the Secretary, Office of Environmental Policy and Compliance, Patricia Sanderson Port (October 24, 2001)**Response to Comment USDOl-1**

Comment noted.

Response to Comment USDOl-2

Erosion protection is required for Alternative 5, Stepped Release to 160,000 cfs to protect the Lower American River levees from the increased duration of high flow compared to without-project. Erosion protection is included in the Alternative 5 description.

Response to Comment USDOl-3

Chapter 8.0, “Evaluation and Comparison of Flood Control Alternatives provides information on the economic feasibility of the flood control alternatives. As indicated in Chapter 8.0, only Alternatives 2, 3, and 4 are considered by the Corps to be economically feasible. Chapter 4.0, “Plan Formulation and Alternatives Screening of Flood Damage Reduction Measures” provides a discussion of how project alternatives were developed and the screening criteria used to determine if an alternative should be evaluated in detail. The result of the plan formulation and alternatives screening process was that three dam raise alternatives, three stepped release alternatives, and one combination alternative were brought forward for detailed evaluation. While preparing the NEPA and CEQA analysis the Corps also conducted an evaluation of the economic feasibility of each flood control alternative. The discussion in Section S.2.3 summarizes the conclusions made in Chapter 8.0 regarding the economic feasibility of each flood control alternative.

Response to Comment USDOl-4

Please see Response to Comment USDOl-3.

Response to Comment USDOl-5

Please see Response to Comment USDOl-3.

Response to Comment USDOl-6

Alternative 8 combines stepped release to 160,000 cfs (Alternative 5) with a seven-foot dam raise (Alternative 3). It is not included in Table 4-2 because this table does not list the project alternatives. Table 4-2 identifies the measures that were taken into consideration when developing the project alternatives. The flood control measure which would have evaluated a stepped release to 160,00 cfs in combination with throttling the objective release back to 115,000 cfs was screened from further evaluation.

Response to Comment USDOl-7a

The last sentence of the last paragraph under Section 7.7, “Fisheries,” on Table S-2 has been modified. Please see Response to Comment USDOJ-7b.

The effects on vegetation as a result of raising the Howe Avenue Bridge are included as part of the evaluation of Alternative 7. As indicated in Section 7.8.10, construction of Alternative 7 would result in the loss of 48.2 acres of riparian woodland. Mitigation measure V-8 would ensure that the loss of riparian vegetation along the Lower American River is fully compensated by planting replacement vegetation at Mississippi Bar.

Response to Comment USDOJ-7b

The effects on splittail and delta smelt and other Federally listed species are evaluated in the Biological Data Report, Volume II, Appendix A, Attachment 4). The BDR concluded that the construction and operation of the preferred alternative (Alternative 3) would not directly or indirectly affect either splittail or Delta Smelt. The Corps recognizes that effects on these species would also be addressed through the Section 7 process if another alternative is selected.

Response to Comment USDOJ-7c

As indicated in Chapter 7.0, “Fisheries” construction could adversely affect fish habitat as a result of discharge of sediments and spills. These effects would be avoided by implementing Mitigation Measures WQ-1 and WQ-2. In water construction would be limited to canals along the landside of levees in the lower portion of the Yolo Bypass. These activities would occur only under Alternatives 5, 6, 7, and 8 and would not be required under the preferred alternative (Alternative 3). The short-term construction related activities are not expected to result in a substantial adverse effect on fish habitat because of the availability of other suitable habitat.

Response to Comment USDOJ-7d

As indicated in Chapter 7.0, “Fisheries” construction related effects on fish were recognized as significant as a result of the potential for sedimentation and spills. These effects would be reduced to a less than significant level by implementing water quality mitigation measures WQ-1 and WQ-2. The Corps does not believe that the landside loss of vegetation would result in a significant adverse effect on fish. However, as indicated in Chapter 7.0, “Vegetation” the Corps would fully mitigation for the loss of vegetation.

Response to Comment USDOJ-7e

The biological data report contained in Attachment 4 of Appendix A includes an assessment of direct and indirect effects of construction on winter-run chinook salmon, spring-run chinook salmon, and steelhead. The Corps has initiated the Section 7 consultation process with NMFS regarding the effects of construction and operation of the preferred alternative (Alternative 3).

A discussion of the Magnuson-Stevens Fishery Consultation and Management Act is included in Section 9.5.1, “Federal Requirements,” of the Final SPFR/EIS/EIR. EFH in the

project is designated for fall run chinook salmon. The Corps will consult with NMFS regarding effects of construction and operation of Alternative 3 on the fall run chinook salmon EFH.

Response to Comment USDOI-8

The U.S. Fish and Wildlife Service (USFWS) recommends mitigation of all of the following cover types associated with the construction of flood control improvements for alternatives 5, 6, 7 and 8; riparian woodland, oak woodland, seasonal freshwater marsh, open water, agricultural lands (rice), and upland herbaceous habitats. Mitigation for these cover types is 1.1:1 for riparian woodland, and 3.5:1 for oak woodland. Mitigation for seasonal freshwater marsh is 1:1. Agricultural lands and upland herbaceous areas are to be reseeded. Chapter 7.0, "Vegetation," provides a discussion of the loss of the vegetation types as a result of construction and operation of each alternative. This discussion also provides mitigation to fully offset these losses.

Response to Comment USDOI-9

A description of shaded riverine aquatic (SRA) habitat has been included in the Sensitive Wildlife Habitats discussion under Section 2.11.3, "Lower American River."

Response to Comment USDOI-10

Please see Response to Comments USDOI-7c and USDOI-11.

Response to Comment USDOI-11

The species lists presented in Section 2.11 reflect only special-status wildlife species known to occur along the Lower American River. The name, Federal and/or state status, distribution, habitat, and occurrence in the study area of wildlife species are provided in Table 2-6. A similar discussion of special-status fish and plant species is provided in Section 2.9 and Section 2.10, respectively.

Response to Comment USDOI-12

This section of Chapter 4.0 summarizes the environmental effects discussed in Chapter 7.0. Chapter 4.0 does indicate that Sacramento splittail and delta smelt could be affected by the construction of the flood control project.

Section 7.9, "Wildlife" includes a discussion of construction-related and operation-related effects on raptors, including bald eagle. The evaluation concluded that construction could affect nesting raptors and that the Corps would ensure that preconstruction raptor surveys are conducted and that construction buffers would be established in coordination with the California Department of Fish and Game.

Response to Comment USDOI-13

Erosion protection is required for Alternative 5, Stepped Release to 160,000 cfs as this flow must be sustained for a longer period of time than under without-project conditions.

Response to Comment USDOI-14

Borrow for hydraulic mitigation would be extracted from two sites at the Port of Sacramento, the Sacramento Bypass site, and one site on Grand Island. A second Grand Island site would not be used, as it is sensitive to vegetation impacts. Plate 5-14 shows these sites.

Response to Comment USDOI-15

No staging areas have been specifically identified for the 160,000 cfs plan. This will not be addressed in the Final SPFR/EIS/EIR. If the alternative is chosen by Congress, staging areas will be selected using pragmatic construction support factors and environmental impact considerations.

Response to Comment USDOI-16

The description titled “Borrow Sites” in Section 5.5.2 states that borrow would be taken from a site just south of old Placerville Road and west of Mather Field (which is the same site as the Happy Lane site noted in comment), and dredge disposal sites from the Port of Sacramento.

Response to Comment USDOI-17

The Corps concurs with this comment. There are more staging areas for the 180,000 cfs plan than the 160,000 cfs plan. They are shown on plate 5-19 in the main report, and plates 2-1 through 2-15 in the Civil Design portion of engineering appendix, Appendix C.

Response to Comment USDOI-18

In a few locations in the Yolo Bypass, levee reinforcement work will impact open water irrigation ditches and sloughs bordering the toe of the levees on the landside. Specifically, this includes hydraulic mitigation sites 2068-1, 2068-2, 2098-10, and 2098-10A. As indicated in Chapter 7.0, “Fisheries” construction related effects on fish were recognized as significant as a result of the potential for sedimentation and spills. These effects would be reduced to a less than significant level by implementing water quality mitigation measures WQ-1 and WQ-2. The Corps does not believe that the landside loss of vegetation would result in a significant adverse effect on fish. However, as indicated in Chapter 7.0, “Vegetation” the Corps would fully mitigation for the loss of vegetation.

The biological data report contained in Attachment 4 of Appendix A includes an assessment of direct and indirect effects of construction on threatened and endangered fish species. The Corps recognizes that effects on these species would be addressed through the Section 7 process if Alternative 7 is selected.

Response to Comment USDOI-19

Egbert Tract has been identified by the Corps as the desired site to undertake mitigation for impacts on wetlands caused by the project. The biological data report contained in Attachment 4 of Appendix A includes an assessment of direct and indirect effects of construction on threatened and endangered species. The Corps recognizes that effects on these species would be addressed through the Section 7 process if Alternative 7 is selected.

Response to Comment USDOI-20

Because of limited in water work and because levee construction would occur during the dry season, the Corps does not believe that construction of Alternative 7 would result in significant effects on aquatic species or habitat. Although construction of Alternative 7 would require some in water construction as a result of increasing the height of the Howe Avenue Bridge, significant adverse effects on aquatic habitat would be avoided. The biological data report contained in Attachment 4 of Appendix A includes an assessment of direct and indirect effects of construction on threatened and endangered species. The Corps recognizes that effects on these species would be addressed through the Section 7 process if Alternative 7 is selected.

Response to Comment USDOI-21

Please see Response to Comments USDOI-9 and USDOI-20.

Response to Comment USDOI-22

The commentor states that stepped release alternatives could result in increased armoring of river bed substrate downstream of Nimbus Dam due to higher frequency of peak flows. Plates 7.1-8, 7.1-9, and 7.1-10 show the project-related changes in the hydrographs under the stepped release alternatives that indicate peak flow rates would exceed the existing peak release rate of 115,000 cfs during lower frequency events (1-in-20, 1-in-50, and 1-in-100 year events). However, the duration of these peak flow events would be relatively short ranging from 24 to 36 hours. Hydraulic analyses of the Lower American River conducted by Ayres (1997) indicated that shear stress and the associated capacity of river flows to dislodge and transport sediment would increase incrementally between modeled flow values of 100,000 cfs and 180,000 cfs. The effects of the increased peak flows to 145,000 cfs or 160,000 cfs on these variables was not modeled and can only be inferred to be somewhat less than the effects observed at 180,000 cfs. Ayres' modeling results indicated that 100-year event flows, the changes in surface gradation of particle sizes was minor due the fact that the channel is vertically stable over a wide range of flows. River bed elevations from aggradation and degradation in the sub-reaches showing the greatest respective changes would only change by an average of 0.1 inches under the worst-case scenario modeled. Based on these data, the Corps disagrees that there would be significant increases in armoring, gravel loss, grade loss, SRA cover, and riparian resources that are currently at risk from erosion.

Response to Comment USDOI-23

Mitigation measure V-8 in Section 7.8.10 has been revised to include the development of 49.8 acres of replacement riparian woodland habitat.

Response to Comment USDOJ-24

Please see Response to Comment USDOJ-12.

Response to Comment USDOJ-25

Please see Response to Comment USDOJ-7a.

Response to Comment USDOJ-26

As discussion of fish species within the project area is provided in Section 2.9, “Fisheries.” Table 2-4 provides a list of fish known to occur in the Lower American River.

Response to Comment USDOJ-27

Within the hydraulic mitigation area, several irrigation ditches and sloughs would be temporarily impacted or relocated to accommodate construction-related activities with strengthening the levees on the landside of the Yolo Bypass. These activities would affect a small area and would be short term. They are not expected to significantly affect aquatic habitat.

The biological data report contained in Attachment 4 of Appendix A includes an assessment of direct and indirect effects of construction on splittail. The Corps recognizes that effects on these species would be addressed through the Section 7 process if Alternative 7 is selected.

Response to Comment USDOJ-28

Please see Response to Comment USDOJ-27.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 REGION IX
 75 Hawthorne Street
 San Francisco, CA 94105

Ms. Veronica Petrovsky
 Environmental Resources Branch
 Planning Division
 US Army Corps of Engineers
 1325 J. Street
 Sacramento, CA. 95814-2922

October 29, 2001

Dear Ms. Petrovsky:

The Environmental Protection Agency (EPA) has reviewed the Draft Supplemental Environmental Impact Statement (DSEIS) for the project entitled **American River Project, Long-Term Study, California**. (CEQ # 010346). Our review is pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and Section 309 of the Clean Air Act.

The US Army Corps of Engineers (Corps), California State Reclamation Board (The Board), and Sacramento Area Flood Control Agency (SAFCA), propose flood control and ecosystem restoration actions for the Sacramento, California area. This report is part of the Corps' continuing American River Watershed Investigation and supplements two prior reports issued in 1991 and 1996.

The DSEIS evaluates alternative measures to provide additional flood protection to the City of Sacramento. Alternatives evaluated include: 1) raising Folsom Dam by 3.5 feet, 7 feet or 12 feet (enlarging Folsom Reservoir); 2) increasing flood releases (stepped releases) from 115,000 cubic-feet-per-second (cfs) to 160,000 cfs or 180,000 cfs, which would require raising and strengthening downstream levees, raising bridges, and widening the Sacramento and Yolo Bypasses, and 3) a combination of raising Folsom Dam and increasing flood releases. Folsom Dam can only pass 70% of the Probable Maximum Flood (PMF) without failure and, therefore, does not meet Federal dam safety standards. Thus, all alternatives which would raise Folsom Dam include measures to correct the PMF deficiency.

Alternative 3: seven-foot dam raise/482-foot flood pool elevation is the Federally supportable Folsom enlargement plan because it has the largest net benefit of the enlargement plans. None of the stepped release/downstream levee improvement plans are economically feasible (negative benefit/cost ratios). Thus, there is no identified Federally supportable stepped release/levee improvement plan. The evaluation also includes ecosystem restoration alternatives

for four sites on the Lower American River and reconfiguration of the existing temperature control shutters on the penstock intake at Folsom Dam.

EPA recognizes the need for reliable flood protection within the American River basin and Sacramento area. We commend the continuing efforts to provide adequate flood protection for the highly urbanized Sacramento area. The proposed restoration project (National Environmental Restoration Plan (NER)) and reconfiguration of the temperature control shutters are of special note. These project features would provide significant ecological benefits to the Lower American River. We urge the Corps and local sponsors to commit to full implementation of the NER and shutter modifications.

USEPA-1

EPA provided comments on the 1991 American River Watershed Investigation (ARWI) EIS and the 1996 ARWI Supplemental EIS. These comments are incorporated by reference. In these past comments, EPA expressed grave doubts regarding the feasibility and acceptability of the proposed detention dam at Auburn due to permanent unacceptable, unmitigable effects on unique natural resources of national significance on the North and Middle Forks of the American River. We identified the detention dam as a potential candidate for referral to the President's Council on Environmental Quality (CEQ) in accordance with 40 CFR Part 1504. Our position in this matter has not changed, especially given the significant improvement in flood protection (from 1-in-85 chance in any year to 1-in-164 chance in any year) which has and will be achieved upon completion of already authorized American River flood control projects (pg. S-3).

USEPA-2

We are concerned with the current analysis because it continues to identify the upstream detention dam as feasible and the most efficient and effective means of controlling flooding on the American River (pg. S-5). The DSEIS assumes the detention dam would provide the highest net benefits and is, therefore, the National Economic Development (NED) Plan (pg. 10-2). We note that significant changes have occurred in the American River basin since the detention dam was first proposed. These changes could seriously affect the cost and feasibility of a detention dam at Auburn. For example, to address safety and recreation concerns, the Bureau of Reclamation has proposed closure of the American River diversion tunnel and restoration of the Auburn Dam construction site, the probable site for the detention dam proposal.

USEPA-3

We recognize that Table 4-2, Summary of Flood Control Measures states that the upstream detention dam has no local support. However, it is not clear whether the detention dam is being considered as an alternative for this flood control action. We request the Final Supplemental EIS (FSEIS) clearly state whether the detention dam is being considered as an alternative which could be selected as the preferred alternative for this specific flood control action. Although the DSEIS states that the costs, benefits, and accomplishments of the detention dam have been updated (pg. 4-22), it is not clear whether this updated information is in the DSEIS (pg. 10-2). We strongly recommend this updated information be provided and discussed in the FSEIS. If the detention dam is selected as the locally preferred alternative, the FSEIS should describe the role of the Corps and potential next steps.

USEPA-4

EPA also has concerns regarding the alternatives analysis, compliance with Section 404, cumulative impacts analysis, water supply, and safety. Because of these concerns, we have classified this DSEIS as category EC-2, Environmental Concerns - Insufficient Information (see

USEPA-5

attached "Summary of the EPA Rating System"). We appreciate the opportunity to review this DSEIS. Please send three copies of the FSEIS to this office at the same time it is officially filed with our Washington, D.C. office. If you have questions or wish to discuss our comments, please call Ms. Laura Fujii, of my staff, at (415) 744-1601.

Sincerely,


Lisa B. Hanf, Manager
Federal Activities Office

Enclosures: Detailed comments (6 pages)
Summary of the EPA Rating System
Filename: Amrlterm.wpd
MI# 003465

cc: FWS, Sacramento
NMFS, Santa Rosa
SAFCA, Sacramento
CA State Reclamation Board, Sacramento
BOR, Folsom Area Office
BOR, Sacramento Office
RWQCB, Central Valley
FEMA, San Francisco

Detailed Comments

Alternatives Analysis

1. The DSEIS states that raising Folsom Dam by 17 feet or 30 feet, as evaluated in an earlier study, is not cost effective (pg. 4-8). The cost of these alternatives would be \$655 million for the 30-foot raise and approximately \$456 million for the 17-foot raise. On-the-other-hand, the upstream detention dam at Auburn is considered very cost effective and feasible, even though it would cost approximately \$788 million (pg. 11-3) and have high environmental and socioeconomic impacts (Table 4-2, pg. 4-25).

Recommendation:

The FSEIS should provide a detailed and clear comparison of the upstream detention dam and all possible expansion alternatives for Folsom Dam and Reservoir. This comparison should include updated and detailed costs, benefits, mitigation costs, potential adverse impacts, and cost/benefit ratios. We recommend this information be provided in table form.

2. The comparison of alternatives (Chapter 8) states that only Alternative 4: twelve-foot dam raise or Alternative 8: stepped release to 160,000 cfs and seven-foot dam raise would meet the objective of providing the city of Sacramento with a minimum expected exceedence probability of 1-in-200 chance per year of flood risk (pg. 8-9). However, the DSEIS states that Alternative 3: seven-foot dam raise would provide a 1-in-213 chance of flooding in any year.

Recommendation:

The FSEIS should provide an explanation for why Alternative 3 is not identified as meeting the minimum flood protection goal of 1-in-200 chance per year, even though this alternative is stated to provide 1-in-213 chance per year protection.

3. Chapter 8 also states that Alternative 3 and Alternative 4 are the most efficient in solving flood control problems based upon net economic benefits and the extent to which the economic benefits exceed costs (pg. 8-10). The benefit/cost ratios of Alternative 3 and 4 are 2.9 and 1.4 respectively (Table 8-4 and Table 8-6). Although Alternative 2: 3.5-foot dam raise has a benefit/cost ratio of 2.4, it is not identified as being an efficient alternative.

Recommendation:

The FSEIS should explain the above discrepancy where Alternative 4, which has a lower benefit/cost ratio, is considered to be more efficient than Alternative 2, which has a much higher benefit/cost ratio.

USEPA-6

USEPA-7

USEPA-8

Compliance with Section 404 of the Clean Water Act

1. The DSEIS does not provide a clear evaluation of potential impacts to wetlands or compliance with Section 404 of the Clean Water Act. While we understand that the 404(b)(1) analysis is provided in Appendix A, this appendix was not provided with the DSEIS. Thus, it is very difficult to determine the adequacy of Section 404 compliance. We note that flood control is not categorically considered water dependent. Therefore, the project proponents are presumed to have other alternatives that would not impact special aquatic sites (e.g., wetlands). There also appears to be a misunderstanding of what is considered a special aquatic site which must be addressed pursuant to Section 404. For example, although there would be direct affects to 23.2 acres of seasonal freshwater emergent marsh, 11.3 acres of open water, and 23 acres of riparian woodland under the stepped release/downstream levee improvement plans (e.g., pg. 7-80), the effect of these losses are being addressed as part of the Endangered Species Act Section 7 consultation (pg. 7-80). There appears to be no consideration of these losses pursuant to Section 404 of the Clean Water Act.

Recommendation:

The FSEIS should include a separate section addressing compliance with Section 404 of the Clean Water Act and potential impacts to special aquatic sites (e.g., wetlands, open water, marshes, riparian woodlands). This section should include a summary of the 404(b)(1) analysis provided in Appendix A, including underlying assumptions and conclusions. We recommend a full explanation of the statement that the DSEIS "meets the exemption criteria of Section 404(r) of the Clean Water Act." (pg. S-15).

2. Although the Corps provides compensation acreage for the loss of riparian woodland, seasonal wetlands, and other wetland habitats; it is not clear how these mitigation acreage values were determined. For example, the Mitigation Measure V-2 compensates for the loss of 1.3 acres of riparian woodland with 1.3 acres of replacement riparian woodland (pg. 7-77), while Mitigation Measure V-3 compensates the loss of 29.8 acres of oak and pine-oak woodlands with 79 acres of replacement woodland (pg. 7-79).

Recommendation:

We strongly recommend the FSEIS provide a clear and detailed description of proposed avoidance, minimization, and compensatory mitigation measures. We note that the DSEIS appears to incorrectly discuss compensatory mitigation when addressing minimization. Mitigation ratios for specific habitat types should be based upon science and recommendations from US Fish and Wildlife Service or National Marine Fisheries Service. Furthermore, the same mitigation ratios should be used for all alternatives. If these ratios differ between alternatives, the FSEIS should provide a persuasive explanation for this inconsistency.

Cumulative Impacts Analysis

1. In our scoping comments, we recommended the DSEIS include a clear description of past, present, and proposed flood protection projects and how these projects may interact with other water supply and restoration projects in the American River basin. At a minimum, we requested a description of the interplay, if any, between the proposed project and Bureau of Reclamation's American River Water Resources Investigation, American River Water Forum Agreement, East Bay Municipal Utility District Water Supply Project, Placer County Water Agency American River Pump Station, potential closure of the Auburn Dam bypass tunnel, efforts to maintain and restore the American River Parkway, Lower American River Habitat Management Program, Folsom Reservoir temperature control device, Lower American River flow standard, and expansion and development of water supply facilities (e.g., Sacramento River and E.A. Fairbairn Water Treatment Plants). Other projects which could be influenced by the proposed action include the Sacramento and San Joaquin Rivers Comprehensive Study, Long-Term Reoperation of Folsom Reservoir, and CALFED actions in the Yolo Bypass.

Although the evaluation of cumulative impacts describes a few of these projects (Chapter 9), it does not describe the potential relationship of the proposed action to these projects or potential impacts to or from these other projects. The cumulative impacts of all these actions, not just other proposed flood control actions, should be fully evaluated.

Recommendation:

The FSEIS should include in Chapter 9 a section evaluating the potential impacts and relationships between the proposed flood control measures and other projects taking place in the project region. For instance, describe how the proposed raising of Folsom Dam would be coordinated and integrated with the Long-Term Reoperation of Folsom Reservoir or how proposed restoration plans fit in with the proposals put forward by the American River Water Forum or Lower American River Habitat Management Program. This section should also describe potential effects to proposed CALFED actions in the region (e.g., Yolo Bypass, Sacramento River) and provide a more complete evaluation of potential cumulative impacts of all direct, indirect, and reasonably foreseeable future projects. Of specific interest would be potential cumulative impacts to special aquatic sites, air quality, water quality, and water supply.

2. Chapter 9 states that the analysis of cumulative impacts focuses on potential impacts to vegetation, wildlife, fish and hydrology (pg. 9-2). However, the cumulative impact analysis is very general, stating that the alternatives would have minor and infrequent impacts which would be reduced through mitigation.

USEPA-9

USEPA-11

USEPA-10

USEPA-12

Recommendation:

The FSEIS should provide a more specific and detailed evaluation of potential cumulative impacts. For instance, provide separate sections describing impacts to vegetation, wildlife, fish and hydrology. The cumulative impact analysis should also explain why significant increases in flood releases would not alter the operational flexibility of the Central Valley Project or State Water Project, especially given the potential effects on the water conservation pool (e.g., potential reduced ability to ensure a full water conservation pool due to large flood control releases).

Safety

1. A critical issue tied to raising Folsom Dam is the displacement of public traffic that travels over the dam via Folsom Dam Road. Although not intended as a public thoroughfare, this roadway has become an important transportation link to developing areas to the east. The Bureau of Reclamation has expressed concern with unrestricted access to the dam due to exposure to sabotage or terrorist attack, potential risk of hazardous and toxic spills, and safety concerns during operation and maintenance activities. A new permanent bridge downstream of Folsom Dam has been proposed and evaluated, but has not been authorized or funded. Alternatives which raise Folsom Dam would include construction of a new temporary or minimum permanent detour bridge to fully mitigate for traffic effects (pg. 4-13).

Recommendation:

Given the recent events of September 11th and the need to seriously consider terrorist attacks, we urge the Corps and local sponsors to seek additional support and funds to implement a new permanent replacement bridge. We note that the permanent detour bridge benefits would exceed costs (pg. 4-15) and thus be economically justified. As stated in the DSEIS, Folsom Dam is upstream of a highly urbanized area which is at significant risk in the event of dam failure.

2. The DSEIS also states that the Sacramento area is at significant risk of flooding in the advent of levee failure during major flood events.

Recommendation:

We suggest the FSEIS provide a short description of the potential risk of levee failure due to terrorist attacks or sabotage during severe storms. If appropriate, security measures which could be implemented could also be described.

USEPA-12
(Cont.)

USEPA-13

USEPA-14

General Comments

1. Although the stepped release alternatives would require modification of pumping stations and water intakes in the Sacramento Weir, Sacramento Bypass, and Yolo Bypass, it states that there are no water supply effects in these areas.

Recommendation:

The FSEIS should describe whether the facilities which will be affected in the Sacramento Weir, Sacramento Bypass, and Yolo Bypass will affect local agricultural or municipal water supply. If yes, describe the importance of these facilities to the local water supply and the construction process which will be implemented to avoid significant disruption to these supplies. We also recommend the significance criteria for water supply (pg. 7-22) include significant disruption in supply such as the loss of supply during critical agricultural irrigation periods or the degradation of water quality.

2. We recommended in our scoping comments that the DSEIS provide an overview of development within the American River basin (e.g., status of Natomas development) and water management in California. Although not included in the DSEIS, we continue to believe such an overview would help provide the regional context for the proposed project, especially in regard to the relationship of American River flood control measures with regional floodplain and water management.

Recommendation:

We recommend the FSEIS describe current Federal Emergency Management Agency (FEMA) floodplain management and insurance regulations, linkages to the Central Valley Project and CALFED proposals, and relationship to flood control projects on the Sacramento River (e.g., Yolo Bypass, Sacramento River levees). It is our understanding that the methods for determining flood risk and appropriate flood protection levels have been evolving over the years. The FSEIS should provide a detailed explanation of the current approach for determining flood risk and flood protection levels.

3. The DSEIS states that there will be no contaminant issues with borrow material because the material would be secured from a borrow source certified as being free from contaminants. Of special concern is the potential for borrow material to be obtained from the Port of Sacramento dredge tailing disposal areas (pg. S-9).

Recommendation:

The FSEIS should describe the certification process for borrow material sources and whether this material is tested prior to certification as free from contaminants.

USEPA-15

USEPA-16

USEPA-17

4. We commend the Corps and local sponsors for the proposed ecosystem restoration plan (Chapter 6). While we strongly support this project component, we are concerned with potential implementation and its integration with other restoration activities taking place in the American River basin.

Recommendations:

We recommend the FSEIS include a short description of potential fall back options in the event that the local sponsors decline to support the ecosystem restoration component. Chapter 6 should also discuss the integration of the restoration work with other restoration programs in the American River basin.

There is also a national effort to address invasive species in critical areas such as the American River and San Francisco Bay Delta (Executive Order 13112 on Invasive Species, issued February 3, 1999). For instance, the National Invasive Species Council released a Management Plan: Meeting the Invasive Species Challenge on January 18, 2001 which provides guidance and recommendations on how to address this growing problem. We recommend the Corps and local sponsors evaluate the potential for complementing proposed invasive species control actions.

5. The potential for climate change is now considered a significant possibility. Current research estimates that climate change could change the amount of snow versus rain received in the northwest. A significant change in the weather patterns of our region could have significant implications for how we management flood control facilities.

Recommendation:

We recommend the FSEIS include a short section on climate change and its potential implications for flood control and water management within the American River basin. If possible, describe the potential impacts of future climate change on the effectiveness of the proposed flood control actions.

SUMMARY OF EPA RATING DEFINITIONS

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

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

USEPA-18

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

"EC" (Environmental Concerns)

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

"EO" (Environmental Objections)

USEPA-19

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

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

ADEQUACY OF THE IMPACT STATEMENT

Category 1" (Adequate)

USEPA-20

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

"Category 2" (Insufficient Information)

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

"Category 3" (Inadequate)

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

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

12.2.3 USEPA – U.S. Environmental Protection Agency, Lisa B. Hanf (October 29, 2001)**Response to Comment USEPA-1**

The recommended plan includes the Woodlake, Bushy Lake, and shutter modification features of the NER Plan. The Urrutia and Arden Bar sites are not included because land acquisition problems and other local concerns resulted in no local sponsor for these features.

Response to Comment USEPA-2

The commentator's position on the detention dam is fully understood and has been addressed in the 1991 Feasibility Report and the 1996 Supplemental Information Report. That information is available for review. Because the detention dam is expected to be highly efficient, it continues to be considered the NED Plan, even upon completion of the authorized work. This supplemental report specifically addressed potential improvements to Folsom Dam and Reservoir and the Lower American River as directed by Congress.

This study recommends Federal participation in the additional modifications to Folsom Dam and Reservoir to increase flood protection. This study and all previous information is available to decision makers who will ultimately decide which flood control project will be authorized for Sacramento.

Response to Comment USEPA-3

We recognize numerous studies are underway that involve the future of the Auburn Dam site. We fully expect Congress to take these possibilities under consideration. None of the proposed alternatives are currently thought to have a significant impact on the overall cost of a detention dam.

Response to Comment USEPA-4

The upstream detention dam is not an alternative that is being studied by this investigation. The Final SPFR/EIS/EIR, identifies Alternative 3, seven-foot dam raise/482-foot flood pool elevation as the recommended plan. However, upstream detention is still viable and could be implemented if the local and Congressional atmosphere allows this to happen.

The impacts associated with upstream detention were fully reported in the 1991 FEIS and the 1996 FSEIS.

Response to Comment USEPA-5

The Corps acknowledges USEPA's classification of the Draft SPFR/EIS/EIR as category EC-2, Environmental Concerns—Insufficient Information. The Corps recognizes that the Draft SPFR/EIS/EIR received this classification because USEPA had concerns regarding the alternatives analysis, compliance with Section 404, cumulative impacts analysis, water supply, and safety. These comments are addressed in Response to Comments USEPA-6 through USEPA-16.

Response to Comment USEPA-6

The Corps recognizes numerous studies are underway that involve the future of the Auburn Dam site. The Corps fully expects Congress to take these possibilities under consideration. None of the proposed alternatives are currently thought to have a significant impact on the overall cost of a detention dam.

The Long-Term Study updated the costs and benefits of one of the upstream detention dam plans studied in the 1991 Feasibility Report and the EIS/EIR. Upstream detention has been studied in detail under the American River Watershed Authority. Further study is not warranted, as conditions have not changed to the point of altering previous basic conclusions on the dam's feasibility. Furthermore, there is no expectation that upstream detention is supported by local interests, at least not at this time. The Final Report includes a comparison of an upstream detention dam to downstream alternatives.

Response to Comment USEPA-7

The error on page 8-9 in Section 8.8.2 of the Draft SPFR/EIS/EIR will be corrected in the Final SPFR/EIS/EIR to include Alternative 3. See Response to Comment FOR-8 for a discussion of a level of protection.

Response to Comment USEPA-8

Benefit/cost ratios are not used by the Corps to determine efficiency. Efficiency is the extent to which an alternative is the most cost-effective means of alleviating the identified problems while realizing the specified objectives are consistent with protecting the nation's environment. One measure of efficiency is monetary costs versus benefits. Efficiency is shown as net economic benefits and is the extent to which the economic benefits exceed costs.

Of the alternatives, Alternatives 3 and 4 most efficiently solve flood control problems. The net annual flood control benefits for Alternatives 3 and 4 as reported in the Draft Report were \$11.7 and \$8.4 million, respectively, whereas for Alternative 2, the net annual flood control benefit is \$6.8 million (see table 8-15 in the Draft SPFR/EIS/EIR). Therefore, Alternative 2 is less efficient than Alternatives 3 or 4.

Response to Comment USEPA-9

The 404(b)(1) analyses included in the appendix were e-mailed to the USEPA as requested on September 18, 2001. These analyses include the underlying assumptions and conclusions made for each alternative. The DSEIS includes a separate section (Chapter 9.0 – Cumulative and Growth Inducing Effects and other Required Disclosures, “Clean Water Act”) that addresses compliance with the Clean Water Act. Included in this section is a discussion on Section 404 of the Clean Water Act and how it typically does not apply to artificial channels that convey only irrigation water. The loss of 23.2 acres of seasonal freshwater emergent marsh, 11.3 acres of open water, and 23 acres of riparian woodland are the effect of the alternative's need to

relocate irrigation ditches from the toe of the landside of the levees (page 7-80 of the Draft SPFR/EIS/EIR). The Corps feels the alternative measure falls within this exception. The USFWS, however, considers these water bodies to be potential habitat for species of concern (e.g., giant garter snake) thus the reference to Section 7 of the Endangered Species Act.

The Clean Water Act discussion in Section 9.5.1 has been revised to include additional information regarding the preferred alternative.

Response to Comment USEPA-10

The amount of mitigation required for each vegetation type was based on acreages reported in the USFWS Coordination Act Report (CAR) (Volume II, Appendix A, Attachment 3). Mitigation measures V-2, V-3, and V-4 in Sections 7.8.5 and 7.8.6 have been revised to include a reference to the USFWS CAR (USFWS 2001a and 2001b).

Mitigation measures V-1 through V-8 compensate for the direct unavoidable loss of vegetation as a result of the construction of Alternatives 2, 3, 4, 5, 6, 7, or 8. BMPs to avoid minimum effects related to construction were incorporated into the description of each project alternative in Chapter 5.0, “Flood Control Alternatives.” These BMPs would help avoid indirect effects on vegetation during construction. One BMP includes seeding of disturbed areas with annual grasses. This section of Chapter 5.0 has been changed to “Environmental Commitments and Best Management Practices” and includes BMPs along with other commitments. This section now includes the commitment to implement a vegetation monitoring and adaptive management plan and to avoid wetlands and riparian vegetation, as described under Mitigation Measure V-2 in Section 7.8.5 of the Final SPFR/EIS/EIR.

Response to Comment USEPA-11

Chapter 9.0, “Cumulative and Growth Inducing Effects and Other Required Disclosures” provides a list of past, present, and reasonably foreseeable projects considered as part of the cumulative impact assessment. The effects of these projects, in combination with the effects of the flood control alternatives and restoration alternatives provided the basis for the conclusions in Chapter 9.0.

Section 7.1, “Hydrology and Hydraulics” includes a discussion of flood control operations at Folsom Reservoir. Increasing the storage capacity of Folsom Reservoir or increasing the conveyance capacity of the Lower American River would not affect the long-term reoperation of Folsom Dam. Under the No-Action Alternative it was assumed that reoperation would be based on the 400,000 – 600,000 acre foot flood rule curve. This reoperation scenario would continue under each project alternative. As indicated in Section 7.3, “Water Supply,” moving to a 400,000 – 600,000 acre-foot flood rule curve would enhance water supply by increasing the frequency that Folsom Reservoir would fill at the end of the flood season. In addition, this would benefit hydropower production, recreation, and fish and wildlife habitat within the Lower American River as well as resources in and around Folsom Reservoir.

Enhancing fish and wildlife habitat is one of the objectives of the Water Forum. This goal is reflected in the American River Corridor Management Plan (RCMP) of which the Water

Forum was a participant. As indicated in Chapter 7.0, “Environmental Effects and Mitigation,” the ecosystem restoration alternatives evaluated in the Draft SPFR/EIS/EIR and are expected to help meet overall restoration goals for the river corridor, including the restoration goals of RCMP. Each ecosystem restoration alternative would benefit vegetation, wildlife, and fisheries within the Lower American River floodplain.

Funded CALFED activities within the project area include a habitat restoration study in the Yolo Bypass (ERP-96-M13), inundation of a section of the Yolo Bypass to restore splittail and other native species (ERP-99-A01), and the Yolo Bypass Restoration Study (ERP-98-E12). Modifications to levees within the Yolo Bypass to allow operation of the stepped release alternatives would be limited to improvements to the landside of bypass levees. Making these improvements would not conflict with the operation of the bypass or conflict with the CALFED aquatic or habitat improvements within the bypass.

The Water Forum process was partially funded by CALFED. As indicated above, the project would be compatible with and would help ecosystem restoration goals. Section 9.2.1 has been revised to include CALFED funded activities within the project area.

The cumulative impact assessment discusses effects on air quality, water quality, and water supply. Operation of the project would not affect air quality or water quality. Although the project would not increase the storage capacity of the reservoir for water supply purposes, operation of each project alternative could enhance water supply because it would increase the potential for Folsom Reservoir to fill at the end of the flood season.

Response to Comment USEPA-12

Sections 9.2.3, 9.2.4, 9.2.5, and 9.2.6 of the Final SPFR/EIS/EIR disclose the cumulative effects of the Folsom Dam raise, stepped release, combined stepped release and Folsom Dam raise, and restoration alternatives, respectively. These sections provide an analysis of the cumulative effects on vegetation, wildlife, fisheries, and hydrology. The Corps believes that these discussions adequately disclose the cumulative effects of the project alternatives on these resources. The analysis indicates that construction and operation would result in relatively small adverse effects on vegetation, wildlife, and fish habitat. As indicated in Sections 7.1, “Hydrology and Hydraulics”; and 7.3, “Water Supply”; 7.7, “Fisheries”; 7.8, “Vegetation”; and 7.9, “Wildlife” impacts associated with construction and operations of the project alternatives would be fully mitigated and that the project alternatives would not contribute to cumulative impacts on these resources.

Section 7.3, “Water Supply” discloses operation and construction related effects on water supply. As indicated in the discussion of the No-Action Alternative, on completion of the modifications to the outlet works at Folsom Dam, flood control operations would shift from the current 400,000–670,000 acre foot flood rule curve to a 400,000–600,000 acre-foot flood rule curve. This change would benefit water supply by increasing the likelihood that Folsom Reservoir would fill at the end of the flood control season. Under the dam raise or stepped release alternatives, flood control operations at Folsom Reservoir would continue to be based on the 400,000–600,000 acre-foot flood rule curve. Because flood control operations are not

expected to affect the potential for the reservoir to fill the impact assessment concluded that the project alternatives would have no cumulative effect on water supply.

Response to Comment USEPA-13

Please See Response to Comment USBR-3.

As a result of the recent events of September 11th, the U.S. Bureau of Reclamation (Reclamation) is more aggressively pursuing a solution to the traffic problem. If the Reclamation receives authorization to construct the bridge, the Corps will closely coordinate to cost-effectively meet all goals related to the bridge.

Response to Comment USEPA-14

The Department of Water Resources (DWR), the Corps, SAFCA, and other water resources agencies are acutely aware that there is a serious need to review, modify, and implement their security measures with respect to terrorist attacks and sabotage that could occur at any time, not just during severe storms.

Chapter 3.0 discusses Problems and Opportunities. Specifically, paragraph 3.2, *System Inadequacies*, acknowledges the Sacramento area's dependence on their reliability of the levee system. The agencies proposing this project are aware that levees can fail for several reasons. They acknowledge that predicting how and where the levees may fail is difficult.

The levee system is under constant scrutiny; paragraph 3.2 describes an analysis of the system that can be provided by a geotechnical assessment of levee stability. Additionally, once the Common Features Project is completed in 2003, the levees are expected to have a high degree of reliability for their design flows.

All water resource agencies are currently in the process of reviewing and updating their security measures to prevent terrorist acts of this nature as well as to prevent levee failure for other reasons. The public can feel confident that construction of the project will include the highest level of security against terrorism and sabotage upon the dam and levee system available at the time of construction; however, it is not the policy of these agencies to explain or describe these measures in detail publicly.

Response to Comment USEPA-15

Chapter 5.0, "Flood Control Alternatives" provides a discussion of drainage facilities and water supply facilities that would be affected by construction of Alternatives 5, 6, 7 and 8. These facilities would not be affected by construction or operation of Alternatives 2, 3, or 4. As indicated in Table 5-5 modifications would be required to 20 drainage facilities which convey stormwater to the Lower American River. Table 5-7 provides information on water supply facilities that would require modification.

No water or irrigation facilities were observed during site visits to the to hydraulic mitigation sites in the Yolo and Sacramento Bypasses conducted in during July and August of

2001. Modification to the levees within the hydraulic mitigation area for Alternatives 5, 6, 7, and 8 would not result in disruption of irrigation of agricultural lands within the bypasses.

The significance criteria on page 7-22 of the Draft SPFR/EIS/EIR indicates that a reduction in the supply of water attributable to construction or operation of the project alternatives would be considered a significant effect. The evaluation concluded that construction or operation would not affect the availability of water diverted from Folsom Reservoir, the Lower American River, or the hydrologic mitigation area.

Construction and operation related effects on water quality were evaluated in Section 7.10, "Water Quality." The analysis concluded that construction could result in adverse effects on water quality. These effects would be avoided by implementing mitigation measures WQ-1 and WQ-2. These include requiring pollution control measures at all construction sites and implementing erosion control measures for construction activities on levees and within flood plain areas. These measures would ensure that the quality of water diverted from the Folsom Reservoir Lower American River, Sacramento Bypass and Yolo Bypass would not be adversely affected during construction of any project alternatives.

Response to Comment USEPA-16

The final report discusses the alternatives' relationship to other water resources projects. These include the Central Valley Project (CVP), CalFed, and the Central Valley Project Improvement Act (CVPIA). The alternatives' impact on flows in the Sacramento River and Yolo Bypass were discussed in the Draft SPFR/EIS/EIR (see section 4.4.2). The recommended plan text in the Final SPFR/EIS/EIR contains additional information on impacts. In addition, the Final SPFR/EIS/EIR contains further explanation of flood risk and how it contrasts with level of protection.

With the already authorized improvements, through Folsom Modifications, there are no FEMA-imposed restrictions or requirements on the American River floodplain that any of the alternatives would impact.

Please see Response to Comment FOR-8 for a detailed explanation of the current approach for determining flood risk and flood protection levels.

Response to Comment USEPA-17

In response to EPA DSEIS Comments, ARLT Study, COE, Oct 2001, no consideration has been given to obtaining borrow from the Port of Sacramento dredge tailing disposal area due to the haul distance. As stated any borrow material needed for the project will be secured from a certified source.

In response to DPR Gold Fields District Comments, only the Federally-owned portion of Mississippi Bar has been identified for use as borrow. The exact location of the proposed borrow site is as depicted on the Map provided to you 11/8/01.

Response to Comment USEPA-18

The EPA support for full implementation of the selected NER Plan is noted. The recommendation that the FSEIS include a description of a potential fall back option for implementation should the local sponsors decide not to support the ecosystem restoration plan is not warranted because implementation of the NER Plan is a separate project purpose, not recommendation from the environmental assessment conducted pursuant to the provisions of NEPA and CEQA. Rather, the NER Plan was formulated under Corps guidance for multiple purpose projects. Also, the planning process included consideration of whether proposed ecosystem restoration alternative are compatible with other projects in the American River Parkway in the evaluation of alternatives under provisions of the River Corridor Management Plan.

Response to Comment USEPA-19

The EPA recommendation that the Corps and local sponsors critically evaluate the eradication of nonnative invasive plant species and control actions with reference to the National Invasive Species Council's Management Plan will be considered during Preconstruction Engineering Design as a management measure.

Response to Comment USEPA-20

The future without-project topography and climate conditions would be similar to those described in Section 2.2, "Topography and Climate." The issue of global warming was not a consideration in this report; however, the subject is discussed briefly below.

Global warming is leading to an overall trend toward more intense rainstorms and drier soils due to the increase in the earth's average surface temperature triggering additional climate changes that can result in increased evaporation and precipitation. Recent studies indicate that California is faced with more frequent major storms and less reliable water supplies. Changes that may seem benign and gradual in some geographic areas can have significant impacts in an area such as Sacramento that frequently faces the threat of flooding. Each of these effects has implications for flood control and water resources. Drier, hotter summers will result in the potential for increased drought, loss of water resources (since the snow pack will no longer be as great to store water), and higher water demands. Unfortunately, actions to prevent flooding as a result of global warming (e.g. early release of water pool) can cause the loss of water resources needed at potential periods of drought at other times of the year. Although, warmer, wetter winter storms will require increased flood capacity, the effect on American River flow frequency cannot be quantified; therefore, they hydrological studies performed for this project do not reflect the issue of global warming.

The dam raise alternatives offer a partial solution to the global warming issues by providing an increase in flood-storage capacity. However, these alternatives are "dry raises" and will not provide for an increase in water supply that would also be needed as a result of global warming. Increases in greenhouse gases are affected, and thus can be controlled, by human activities. (The mining and burning of fossil fuels accounts for 75 percent of the increase in carbon dioxide; and land alteration patterns accounts for another nearly 25 percent. Section 7.13,

“Air Quality,” discusses measures that will be taken to reduce the emissions generated as a result of construction operations. Reduction of emissions is a proactive solution to slowing the trend towards global warming.

Section 2.2 has been revised in the Final SPFR/EIS/EIR to include this discussion on global warming.