Appendix B
Biological Assessment

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APPENDIX B

Biological Assessment

The information comprising the Biological Assessment (BA) consists generally of information drawn from previously circulated public documents, such as the *Central Valley Project Improvement Act Programmatic Environmental Impact Study* and the *Trinity River Flow Evaluation Study*, and the results of prior endangered species consultations conducted between the U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, and National Marine Fisheries Service. A description of the information comprising the BA and a listing of the associated documents is provided in the following letters.

All of the information comprising the BA will be made available for review by the federal decision-maker as part of the review of the information contained in the administrative record. Requests for copies of the documents that comprise the BA should be made to:

Lester Snow
Regional Director
Bureau of Reclamation
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, CA 95825-1898
(916) 979-2066

Letter to the U.S. Fish and Wildlife Service

United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, California 95825-1898

IN REPLY
REFER TO:
MP-150
ENV-7.00

JUN - 6 2000

MEMORANDUM

To: Field Supervisor, Sacramento Fish and Wildlife Office, U.S. Fish and Wildlife Service
Sacramento, California

From: FOR Lester A. Snow
Regional Director

Subject: Trinity River Mainstem Fishery Restoration Program - Request for Formal Consultation

I am writing to request reinitiation of formal consultation under §7 of the Endangered Species Act, pursuant to 50 C.F.R. 402.16(b), for the potential adverse effects upon the threatened delta smelt (*Hypomesus transpacificus*) and its designated critical habitat, threatened bald eagle (*Haliaeetus leucocephalus*), endangered salt marsh harvest mouse (*Reithrodontomys raviventris*), and endangered California clapper rail (*Rallus longirostris obsoletus*) that may result from changes in operation of the Central Valley Project (CVP) due to implementation of the Preferred Alternative for the proposed Trinity River Mainstem Fishery Restoration Program ("Preferred Alternative"). Reinitiation of consultation is appropriate due to the potential for changed circumstances from those evaluated in the biological opinion titled *Formal Consultation and Conference on Effects of Long-term Operation of the Central Valley Project and State Water Project on the Threatened Delta Smelt, Delta Smelt Critical Habitat, and Proposed Threatened Sacramento Splittail*, dated March 6, 1995, at Attachment 1, and the biological opinion titled *Formal Endangered Species Act Consultation on Effects of Implementing Long Term Operational Criteria and Plan {"OCAP"} for Central Valley Project Reservoirs*, dated February 12, 1993, at Attachment 2. Additionally, we are supplementing our request for conversion of a conference opinion to a formal biological opinion over the potential for adverse effects to the threatened Sacramento splittail (*Pogonichthys macrolepidotus*), resulting from operation of the CVP, dated February 18, 1999.

We are also writing to initiate informal consultation on implementation of the Preferred Alternative upon the bald eagle and the threatened Northern spotted owl (*Strix occidentalis*) within the Trinity River watershed. Based on information described in the *Biological Assessment for Those Actions in the Preferred Alternative of the Proposed Trinity River Mainstem Fishery Restoration Program That May Affect Listed Species and Their Designated Critical Habitat in the Trinity and Klamath Rivers*, provided at Attachment 3, we believe that implementation of the proposed project may affect, but is not likely to adversely affect, either species within the geographic area described in that enclosure, nor is it likely to adversely modify designated critical habitat for the Northern spotted owl.

The Preferred Alternative consists of a combination of a change in the flow regime on the Trinity River, downstream of Lewiston Dam, combined with mechanized channel restoration projects within the

channel and floodway of the mainstem of the Trinity River, and with watershed restoration actions in the Trinity River watershed. A more detailed description of the Preferred Alternative is found under the heading "Flow Evaluation Alternative"[1], at Chapter 2 in the draft Environmental Impact Statement/Environmental Impact Report for the Trinity River Mainstem Fishery Restoration Program ("Trinity DEIS/EIR"), at Attachment 4. The purpose of the proposed action is to restore and maintain the natural production of anadromous fish on the Trinity River mainstem downstream of Lewiston Dam. Implementation of the Preferred Alternative may necessitate revised operations within other elements of the CVP, in order to minimize the potential for adverse effects to listed anadromous fish species and their designated critical habitat, within the central valley of California. A description of these potential actions are described Chapter 3 and Appendix A of the Trinity DEIS/EIR, and in the *Biological Assessment for Effects of the Central Valley Project and State Water Project Operations from October 1998 through March 2000 on Steelhead and Spring-run Chinook Salmon*, a copy of which is included at Attachment 5.

The specific areas where the listed species occur, that may be affected by the implementation of the Preferred Alternative, include the Trinity River below Lewiston Reservoir, the Sacramento River below Keswick Dam, two California Water Project Reservoirs (Lake Oroville and San Luis Reservoir), and the Feather River below Oroville Dam; Folsom Reservoir and the lower American River, below that reservoir; Millerton Reservoir and the San Joaquin River below that reservoir; and the Sacramento-San Joaquin River Delta ("Delta"). Additional detail on these areas are found in the Trinity DEIS/EIR at Chapter 3 and in the Central Valley Project Improvement Act (CVPIA) Programmatic Environmental Impact Statement (PEIS) at Chapter 3 and technical appendix Volume 3, provided at Attachment 6, and in Attachment 5 at Chapters 2, 3, 5, and 6.

By this letter, Reclamation is transmitting the following enclosed documents to the Sacramento Fish and Wildlife Office, which collectively serve as our biological assessment for this consultation: 1) *Formal Consultation and Conference on Effects of Long-term Operation of the Central Valley Project and State Water Project on the Threatened Delta Smelt, Delta Smelt Critical Habitat, and Proposed Threatened Sacramento Splittail*, dated March 6, 1995; 2) *Formal Endangered Species Act Consultation on Effects of Implementing Long Term Operational Criteria and Plan (OCAP) for Central Valley Project Reservoirs*, dated February 12, 1993; 3) *Biological Assessment for Those Actions in the Preferred Alternative of the Proposed Trinity River Mainstem Fishery Restoration Program That May Affect Listed Species and Their Designated Critical Habitat in the Trinity and Klamath Rivers*; 4) the Trinity DEIS/EIR; 5) *Biological Assessment for Effects of the Central Valley Project and State Water Project Operations from October 1998 through March 2000 on Steelhead and Spring-run Chinook Salmon*, 6) the CVPIA PEIS; 7) *Explanation of Tables and Figures Generated From Original Data Sets in PROSIM Modeling for Trinity River Mainstem Fishery Restoration Draft EIS/EIR ("Trinity DEIS/EIR")*; and 8) *Foraging Ecology of Bald Eagles on Shasta Lake (Draft), March 2000*[2]

As stated in Chapter 4 of the Trinity DEIS/EIR, water committed to increased instream flow in the Trinity River is no longer available for use in the Central Valley, which may affect listed species or their

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[1]The terms "Preferred Alternative" and "Flow Evaluation Alternative" are used interchangeably in this letter and in the biological assessment for the proposed action.

[2]Note that this report is in draft form and has not been peer reviewed. However, it represents a component of the best scientific information available concerning possible effects upon the bald eagle at this time.

designated critical habitat. Changes in Delta inflow and outflow may affect listed species resident in or passing through the Delta, or adversely affect designated critical habitat.

Chapter 3 of the Trinity DEIS/EIR describes potential impacts to native anadromous fish and resident native fish in the Central Valley. The attachments at Attachment 7 present further, more detailed, evaluation of output data generated by PROSIM for the development of the Trinity DEIS/EIR. PROSIM is a monthly planning model designed to simulate the response of the hydrologic systems of the CVP to changes in operating parameters. This comparative model is considered "state of the art" methodology for assessing impacts to the CVP and was the tool used in developing and analyzing the alternatives presented in the Trinity DEIS/EIR. Data shown in the attachments are organized to more specifically compare differences between 1) level of development in 1995 ("Existing Conditions") against development in the year 2020 ("No Action Alternative"), and 2) the No Action Alternative against the Preferred Alternative (which are both at year 2020 level of development)[3]. The Trinity DEIS/EIR compares these conditions; however, data used in the Trinity DEIS/EIR are shown as average annual changes rather than monthly averages by calendar year and water year type. Further evaluation of the raw data used to develop the Trinity DEIS/EIR, as presented in Attachment 7, more clearly illustrates whether there are specific hydrologic periods when effects upon listed species and critical habitat may occur, and at what time of the year such effects may occur. Additionally, the more precise output assists in identifying outlier data points that may bias the analysis presented in the Trinity DEIS/EIR. This analysis was conducted to more precisely identify potential effects upon listed species.

Comparing the hydrologic conditions modeled for the Preferred Alternative with the conditions modeled for the No Action Alternative allows evaluation of the effects of the proposed action against other future conditions. Subsequent comparison of this information, evaluated against a similar comparison of the modeling of the No Action Alternative against modeling of the Existing Conditions, allows differentiation between effects associated with the Preferred Alternative and effects from other future actions such as increased demands due to increased development.

Our conclusion is that implementation of the Preferred Alternative may result in adverse effects upon the threatened delta smelt and Sacramento splittail and may adversely affect designated critical habitat of the delta smelt, as well as having the potential to adversely affect habitat for other fish species that utilize the Delta. The allowable ratio of exports to inflow agreed upon in the Delta Accord and other requirements of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary were not exceeded for any year simulated; however, there were changes to Delta inflow and outflow. Table 3-16 of the Trinity DEIS/EIR is a summary which displays the percent of years under the Preferred Alternative where Delta outflows are at least 10 percent less than the baseline used for evaluating all alternatives. Conditions in the month of June showed the most change and comparisons of the model study results indicated the larger changes occurred primarily in wet and above normal years. Additional detail on these effects is presented in Attachment 7. These reductions in outflows may be substantial and may adversely affect designated critical habitat for delta smelt by changing the location and, therefore, the volume of the entrapment zone. The reductions may also increase the magnitude of transport effects

[3]Detailed descriptions of the Preferred Alternative, No Action Alternative, and Existing Conditions are found in the Trinity DEIS/EIR at Chapter 2.

that result from the operation of the export facilities upon flow directions in Delta waterways. This may result in adverse effects upon both delta smelt and Sacramento splittail due to the possibility of increased levels of take at the export facilities.

CVP operations in the Delta would continue to be managed to avoid or minimize changes to environmental conditions in the Delta likely to cause adverse impacts to both resident native species and species moving through the Delta. The simulated operations prepared for the CVPIA B2 Interagency Team could be used to evaluate potential changes to Delta conditions and actions available to meet requirements of the March 6, 1995, biological opinion.

The simulated Shasta Reservoir storage information provided within Attachment 7, shows a reduction in storage for all months in years that are classified as "Below Normal" or drier, based on hydrologic conditions. These reductions are substantial under some hydrologic circumstances. In "Above Normal" or wetter years, the reductions in volume are generally not as extensive in either duration or magnitude. The February 12, 1993, biological opinion for the CVP OCAP called for monitoring programs at Shasta Lake after noting that reproductive success of bald eagles appeared to be correlated with mean reservoir surface elevations during the breeding seasons. These programs were implemented and conducted in collaboration with the U.S. Forest Service, Attachment 8. Although detailed data concerning foraging activity were obtained, the relationship between lake levels and reproductive success is not clear due to complicating factors such as human use of the reservoirs and surrounding land. There was an absence of correlation between lake levels and breeding success at Trinity Reservoir. Several patterns and observations did result from the studies:

1) The number of nesting pairs has increased fairly steadily at Shasta Lake over the past thirty years, even during drought years.

2) Reproductive success per nest has shown year to year variations, but no definitive correlations were apparent that related lake elevations with breeding success. Bald eagle breeding success remains well within the range of success characteristic of stable bald eagle populations.

3) While the general apparent relationship of reproductive succession with lake elevation still holds, the data from the studies suggests that intraspecific competition may be equally or even more important. Reproductive success in the early 80's was about twice that of the equally wet late 90's when the number of nesting pairs had doubled. In addition, isolated low elevation years tend to have relatively high reproductive success, suggesting that factors other than lake elevations per se exhibit greater influence over reproductive success.

4) The bald eagles at Shasta Lake are part of a large, wide-ranging population that exploit available habitat as far north as the Great Slave Lake, thus confounding any attempt to develop reservoir-specific breeding success and masking any attempt to develop effects on the bald eagle population as a whole from any one specific location. In fact available information would indicate stable or increasing bald eagle populations.

It appears from the data available that year to year lake level variations have no clearly demonstrable effect and that from an overall perspective bald eagle populations are actually increasing at Lake Shasta.

Thus, given the magnitude of the changes in reservoir elevation that could occur in Shasta Lake from implementation of the Preferred Alternative, such implementation would not likely adversely affect bald eagles.

By a letter to the U.S. Environmental Protection Agency (USEPA), dated September 14, 1995, the USFWS stated that implementation of the State Water Resources Control Board's (SWRCB) Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary ("WQCP") will not likely adversely affect the previous conclusions of the USFWS's biological opinion on the USEPA's proposed Water Quality Standards for the San Francisco Bay/Sacramento-San Joaquin Rivers and Delta, reference number 1-1-93-F-61, dated November 2, 1994. The conclusion of that opinion was that implementation and adherence to the standards would not likely result in adverse affects upon either the salt marsh harvest mouse or the California clapper rail. The allowable ratio of exports to inflow and other requirements of the WQCP were not exceeded for any year simulated in the preparation of the Trinity DEIS/EIR. Since implementation of the Preferred Alternative is not expected to result in violations of the WQCP, we believe that the Preferred Alternative is not likely to adversely affect either the salt marsh harvest mouse or the California clapper rail.

We request that you provide us with a draft biological opinion, prior to delivery of a final biological opinion. We continue to remain available to your staff during this consultation process. Please direct questions regarding the information provided herein to Chet Bowling, Reclamation, at (916) 979-2066.

Attachments

1. Formal Consultation and Conference on Effects of Long-term Operation of the Central Valley Project and State Water Project on the Threatened Delta Smelt, Delta Smelt Critical Habitat, and Proposed Threatened Sacramento Splittail, dated March 6, 1995
2. Formal Endangered Species Act Consultation on Effects of Implementing Long Term Operational Criteria and Plan (OCAP) for Central Valley Project Reservoirs, dated February 12, 1993
3. Biological Assessment for Those Actions in the Preferred Alternative of the Proposed Trinity River Mainstem Fishery Restoration Program That May Affect Listed Species and Their Designated Critical Habitat in the Trinity and Klamath Rivers
4. Trinity River Mainstem Fishery Restoration Draft EIS/EIR
5. Biological Assessment for Effects of the Central Valley Project and State Water Project Operations from October 1998 through March 2000 on Steelhead and Spring-run Chinook Salmon
6. Central Valley Project Improvement Act PEIS
7. Explanation of Tables and Figures Generated From Original Data Sets in PROSIM Modeling for Trinity River Mainstem Fishery Restoration Draft EIS/EIR ("Trinity DEIS/EIR")
8. Foraging Ecology of Bald Eagles on Shasta Lake (Draft), March 2000

Letter to the National Marine Fisheries Service

United States Department of the Interior

June 6, 2000

U.S. Fish and Wildlife Service
California/Nevada Operations Office
2800 Cottage Way, Suite W-2606
Sacramento, California 95825

U.S. Bureau of Reclamation
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, California 95825

Mr. Rodney R. McGinnis
Acting Regional Administrator
National Marine Fisheries Service
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

Dear Mr. McGinnis:

We are writing to supplement our request to the National Marine Fisheries Service (NMFS) to initiate formal consultation under Section 7 of the Endangered Species Act, dated December 14, 1999, over potential effects upon listed threatened or endangered species that may result from implementation of the Preferred Alternative of the proposed Trinity River Mainstem Fishery Restoration Program ("Preferred Alternative"). By that letter, the U.S. Bureau of Reclamation (USBR) and the U.S. Fish and Wildlife Service (USFWS) initiated formal consultation on the threatened coho salmon, threatened spring run chinook salmon, and the endangered winter run chinook salmon. We have enclosed supplemental information, under the title *Biological Assessment for Those Actions in the Preferred Alternative of the Proposed Trinity River Mainstem Fishery Restoration Program*, provided at Enclosure 1, concerning effects from the proposed project upon the coho salmon and its designated critical habitat, for use in the consultation. Additionally, we have determined that we must request reinitiation of the formal Section 7 consultation, conducted in 1992-1993, over the potential for impacts to the endangered winter run chinook salmon, and its designated critical habitat resulting from the long term implementation of the Operating Criteria and Plan (OCAP) for the Central Valley Project (CVP), due to changed circumstances from those evaluated in the *Biological Assessment and Biological Opinion for the OCAP for the CVP/SWP on the Winter Run Chinook Salmon*, provided at Enclosure 2, that would result from implementation of the Preferred Alternative.

Subsequent to the date that we initiated formal Section 7 consultation on this program, critical habitat was designated for spring run chinook salmon and steelhead trout. Actions taken within the scope of the program, as briefly described in our initial letter may result in effects upon such

critical habitat. By this letter, we are expanding our request to enter into formal Section 7 consultation to include an evaluation and consideration of potential effects upon the threatened steelhead trout and designated critical habitat for spring run chinook salmon and steelhead trout.

The Preferred Alternative consists of a combination of a change in the flow regime on the Trinity River, downstream of Lewiston Dam, combined with mechanized channel restoration projects within the channel and floodway of the mainstem of the Trinity River, and watershed restoration actions in the Trinity River watershed. A more detailed description of the Preferred Alternative is found under the heading "Flow Evaluation Alternative"[1], at Chapter 2 in the draft Environmental Impact Statement/Environmental Impact Report for the Trinity River Mainstem Fishery Restoration Program ("Trinity DEIS/EIR"), at Enclosure 3. The purpose of the proposed action is to restore and maintain the natural production of anadromous fish on the Trinity River mainstem downstream of Lewiston Dam. Implementation of the Preferred Alternative may necessitate revised operations within other elements of the CVP, in order to minimize the potential for adverse effects to listed anadromous fish species species and their designated critical habitat. A description of such potential revisions to existing CVP operation were initially provided to you in the *Biological Assessment for Effects of the Central Valley Project and State Water Project Operations from October 1998 through March 2000 on Steelhead and Spring-run Chinook Salmon*, with additional protective revisions described in the associated biological opinion, both provided at Enclosure 4.

The specific areas where listed salmonid species occur, that may be affected by the implementation of the Preferred Alternative, include the mainstem of the Trinity River from Lewiston Reservoir to its confluence with the Klamath River and thence downstream to its outlet to the Pacific Ocean; as well as those areas previously identified in our request for consultation on the CVP OCAP. Please note that these areas all constitute designated critical habitat for one or more of the listed anadromous fish species that we are consulting on, with the exception of tribal lands on the Trinity River and the Klamath River. Additional detail on these areas can be found in the Trinity DEIS/EIR at Chapter 3 and in the Central Valley Project Improvement Act (CVPIA) Programmatic Environmental Impact Statement (PEIS) at Chapter 3 and in technical appendix Volume 3, both provided at Enclosure 5, and in Enclosure 4 at Chapters 2, 3, 5, and 6.

By this letter, the USFWS and USBR are transmitting the following enclosed documents to the NMFS, which collectively serve as our biological assessment for this consultation: 1) the *Biological Assessment for Those Actions in the Preferred Alternative of the Proposed Trinity River Mainstem Fishery Restoration Program That May Affect Listed Species and Their Designated Critical Habitat in the Trinity and Klamath Rivers*; 2) the *1993 Biological Assessment and Biological Opinion for the OCAP for the CVP/SWP on the Winter Run Chinook Salmon*; 3) the DEIS/EIR for the Trinity River Mainstem Fishery Restoration Project; 4) the *Biological Assessment for Effects of Central Valley Project and State Water Project Operations from October 1998 through March 2000 on Steelhead and Spring-run Chinook Salmon*, with its associated biological opinion; 5) the Central Valley Project Improvement Act (CVPIA) PEIS;

[1] The terms "Preferred Alternative" and "Flow Evaluation Alternative" are used interchangeably in this letter and in the biological assessment for the proposed action.

and 6) *Explanation of Tables and Figures Generated From Original Data Sets in PROSIM Modeling for the Trinity River Mainstem Fishery Restoration Draft EIS/EIR (Trinity DEIS/EIR")*.

As stated in Chapter 4 of the Trinity DEIS/EIR, water commited to increased instream flow in the Trinty River is no longer available for use in the Central Valley, which may affect listed species or their designated critical habitat because temperature objectives and carryover storage criteria established in the 1993 Sacramento winter run chinook salmon biological opinion may be violated, resulting in additional adverse effects not previously evaluated. Additional information on these effects is provided at Enclosure 6 and in Chapter 4 of the Trinity River DEIS/EIR. Associated changes in storage in Folsom Reservoir, reduced summer flow and increased water temperatures in the American River may affect steelhead and its designated critical habitat. Changes in Delta inflow and outflow may affect listed species resident in or passing through the Delta. These effects are discussed in Enclosure 5.

Chapter 3 of the Trinity DEIS/EIR describes potential impacts to native anadromous fish and resident native fish in the Central Valley. Chapter 2 of the CVPIA PEIS discusses temperature impacts in the American River in summer months in alternatives which include a different Trinity River release schedule than the Preferred Alternative and which include implementation of Section 3406(b)(2) of the CVPIA[2]. The Trinity DEIS/EIR concludes there would be adverse effects to Sacramento River fall and winter-run chinook salmon runs. These effects are primarily related to higher temperatures in the upper Sacramento River during the spawning and incubation periods of winter-run chinook salmon. A summary of percent change in temperature related losses of the early life stages of anadromous salmonids in the Sacramento River is provided in Table 3-15 of the Trinity DEIS/EIR. Estimated annual changes in temperature related mortality simulated for the period of 1922 through 1990 are presented in Appendix B of the Trinity DEIS/EIR, at Table B-27 and Attachment B14. A review of model study results in the attachments at Enclosure 6, discussed below, revealed that the majority of estimated losses for winter-run chinook salmon, compared to the No Action Alternative, resulted from extremely high mortalities during a small number of critically dry water years (1924, 1931 through 1934, 1937, and 1977). Under the existing OCAP biological opinion for winter run chinook salmon, there are no temperature criteria or carryover requirements for critically dry years. However, the USBR is currently required to reinitiate consultation with NMFS to develop an operations plan which attempts to minimize losses to winter-run chinook salmon under such circumstances.

The attachments at Enclosure 6 present further, more detailed evaluation of output data generated by PROSIM for the development of the Trinity River DEIS/EIR. PROSIM is a monthly planning model designed to simulate the response of the hydrologic systems of the Central Valley Project to changes in operating paramenters. This comparative model is considered "state of the art" methodology for assessing impacts to the CVP and was the tool used in developing and

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[2]The Trinity River release schedule used in the CVPIA PEIS evaluated flows in the Trinity River ranging from 390,000 to 750,000 acre-feet per year, based on hydrologic year classification, and with no change in the minimum carryover storage for Trinity Reservoir. The diversions from the Trinity River into the Central Valley are reduced more under the Preferred Alterantive as a result of the 369,000 to 815,000 acre-foot per year flow schedule, combined with the increased 600,000 acre-foot minimum carryover storage. The temperature impacts of the CVPIA alternatives in the American River and lower Sacramento River resulting from reduced Trinity diversions to the Central Valley would be expected to be less in magnitude and frequency than those of the Preferred Alternative.

analyzing the alternatives presented in the Trinity DEIS/EIR. Data shown in the attachments are organized to more specifically compare differences between 1) level of development in 1995 ("Existing Conditions") against development in the year 2020 (the "No Action Alternative") and 2) the No Action Alternative against the Preferred Alternative (which are both shown at the year 2020 level of development)[3]. The Trinity DEIS/EIR compares these conditions; however, data used in the document are shown as average annual changes rather than monthly averages by calendar year and water year type. Further evaluation of the raw data used to develop the Trinity DEIS/EIR more clearly illustrates whether there are specific hydrologic periods when effects to listed species and critical habitat may occur, and at what time of the year such effects may occur. Additionally, the more precise output assists in identifying outlier data points that may bias the analysis as presented in the Trinity DEIS/EIR. This analysis was conducted to more precisely identify potential effects upon listed species.

Comparing the hydrologic conditions modeled for the Preferred Alternative with the conditions modeled for the No Action Alternative allows evaluation of the effects of the proposed action against other future conditions. Subsequent comparison of this information, evaluated against a similar comparison of the modeling of the No Action Alternative against modeling of the Existing Conditions, allows differentiation between effects associated with the Preferred Alternative and effects from other future actions such as increased demands due to increased development.

Our conclusion is that implementation of the Preferred Alternative may result in adverse effects upon listed salmonid species in the Sacramento River Basin. An evaluation of the data presented at Enclosure 6 shows that there are reductions in carry over storage at the end of the water year in Shasta, particularly in "Below Normal" or drier years, by the Preferred Alternative over the No Action Alternative. The modeled reduction shows that the requirements of the 1993 biological opinion for winter-run chinook salmon for carry over storage would not have been met in eight years, all which were classified as "Below Normal" or drier. The data in Enclosure 6 also show that there would be an increase in the number of incidences where the temperature requirements at Jelly's Ferry and Bend Bridge, under the same biological opinion, would not be met by the Preferred Alternative when they would otherwise be met under the No Action Alternative. However, the magnitude of the violations is generally minor. Last, there are reductions in outflows which may be substantial and may adversely affect designated critical habitat for winter and spring run chinook salmon and steelhead, and may also have the potential to adversely affect habitat for other fish species that utilize the Delta. These reductions may result in adverse transport effects on out migrating smolts, as well as adversely affecting designated critical habitat for listed salmonid species by changing the location and, therefore, the volume and characteristics of the entrapment zone.

To address potential temperature related impacts to winter-run chinook salmon and other Sacramento River salmonids, USBR will continue to incorporate reasoned biological decisions for managing limited cold water resources in Shasta Reservoir taking into account the actual

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[3] Detailed descriptions of the Preferred Alternative, No Action Alternative, and Existing Conditions are found in the Trinity DEIS/EIR at Chapter 2.

circumstances each year through the Sacramento River Temperature Task Group. Information presented at both Chapter 3 and Appendix A of the Trinity DEIS/EIR identifies several mitigation measures to improve the operation of Trinity and Shasta Reservoirs to meet temperature objectives in both the Trinity and Sacramento Rivers. Development of annual temperature control plans will be initiated as early as October 1 each year in coordination with the implementation of Section 3406(b)(2) of the CVPIA. Through the CVPIA B2 Interagency Team, USBR, NMFS, and the USFWS may use existing discretion in scheduling Anadromous Fisheries Restoration Program instream flows to assist in cold water pool management and temperature control in the upper Sacramento River. The Sacramento River Temperature Task Group ("Task Group") has a history of effectively managing the available cold water resources for temperature control priorities. USBR has worked each year with the Task Group to avoid or minimize potential temperature impacts on the endangered winter-run chinook and other listed salmonid species in the Sacramento River. The Task Group would continue to evaluate alternative operational plans with the changes that would result from the new direction of resources under implementation of the Preferred Alternative. USBR will continue to evaluate the performance of the Shasta Dam temperature control device and manage operations accordingly. The American River Operations Group performs a similar function in assisting USBR to manage flow and cold water resources for temperature control priorities in the Lower American River. USBR will continue to work with the American River Operations Group to address potential impacts of implementing the proposed Preferred Alternative on listed salmonid species.

When evaluating potential measures to address outflow and transport effects, we must first note that the allowable ratio of exports to inflow agreed upon in the Bay-Delta Accord and other requirements of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary were not exceeded for any year simulated; however, there were changes to Delta inflow and outflow. Table 3-16 of the Trinity DEIS/EIR is a summary displaying the percentage of years in which Delta outflows are at least 10 percent less than the baseline used for evaluating all alternatives. As shown it that table, conditions in the month of June showed the greatest amount of change and comparisons of the model study results at Enclosure 6 indicated the larger changes occured primarily in wet and above normal years. CVP operations in the Delta would be managed to avoid or minimize changes to environmental conditions in the Delta likely to cause adverse impacts to both resident native species and species moving through the Delta. The simulated operations prepared for the CVPIA B2 Interagency Team could be used to evaluate potential changes to Delta conditions and actions available to meet water quality and listed species protection requirements.

We request that you provide us with a draft biological opinion, prior to delivery of a final biological opinion. We continue to remain available to your staff during this consultation process. Please direct questions regarding the information provided herein to Chet Bowling, USBR, at (916)979-2066, or Mary Ellen Mueller, USFWS, at (916) 414-6464.

Sincerely,

Michael J. Spear
Manager
California/Nevada Operations Office
U.S. Fish and Wildlife Service

Lester A. Snow
Regional Director
Mid-Pacific Region
U.S. Bureau of Reclamation

cc: Don Reck, NMFS
Gary Stern, NMFS
Jim Lecky, NMFS

Enclosures:

1. Biological Assessment for Those Actions in the Preferred Alternative of the Proposed Trinity River Mainstem Fishery Restoration Program That May Affect Listed Species and Their Designated Critical Habitat in the Trinity and Klamath Rivers
2. 1993 Biological Assessment and Biological Opinion for the OCAP for the CVP/SWP on the Winter Run Chinook Salmon
3. Trinity River Mainstem Fishery Restoration DEIS/EIR.
4. Biological Assessment for Effects of Central Valley Project and State Water Project Operations from October 1998 through March 2000 on Steelhead and Spring-run Chinook Salmon
5. Central Valley Project Improvement Act (CVPIA) PEIS
6. Explanation of Tables and Figures Generated From Original Data Sets in PROSIM Modeling for the Trinity River Mainstem Fishery Restoration Draft EIS/EIR (Trinity DEIS/EIR").