U.S. Department of the Interior
Record of Decision
Trinity River Mainstem Fishery Restoration
Final Environmental Impact Statement/Environmental Impact Report
December 2000

I. Introduction and Statement of Decision

The Trinity and Klamath Rivers in northern California once teemed with bountiful runs of salmon and steelhead. Historically, hundreds of thousands of salmon and steelhead would enter the Klamath estuary and migrate upstream during several months of the year. After traveling through the lower 44 miles of the Klamath River, many of these fish would turn south at the confluence of the Trinity River and continue their journey to the middle and upper Trinity River. Adult salmon and steelhead would spawn in the clean gravels of the mainstem Trinity and several of its tributaries. Millions of young salmonids would then emerge from the gravel between January and June and rear in the diversity of habitats found in the river. The young of some species would begin their downstream migration to the Pacific Ocean within a few months of emerging from the gravel where they were spawned. Others remained in the river for a year or more before beginning their downstream migration. All of these fish would grow as they moved downstream through the Trinity, lower Klamath Rivers and Klamath estuary, undergoing physiological changes in preparation for life in the ocean. Suitable habitat and water quality were critical for the young salmon and steelhead during every stage of their outmigration in order for them to grow and become physically able to tolerate the transition to ocean life. After several years in the ocean fish return to the Klamath River as adults and once again begin the upstream migration to the Trinity River to spawn in their natal streams.

These impressive fish stocks defined the life and culture of the Hoopa Valley and Yurok Indian Tribes, and reservations were established along the Trinity and lower Klamath Rivers in the mid- to late-1800s based in large part on the Tribes' reliance on these resources. The abundance of the region's fishery resources also helped support the economy and way of life for the people of the region as a whole.

The once majestic runs in the Trinity River experienced significant declines following the construction and operation of the Central Valley Project's Trinity River Division (TRD) in the early 1960s. The TRD not only eliminated 109 miles of important salmonid habitat above Lewiston, California, but also exported to the Sacramento River as much as 90 percent of the waters flowing into the Trinity River at Lewiston, California. In authorizing the TRD, Congress believed water excess to the needs of the Trinity Basin could be diverted to the Central Valley while still ensuring the preservation and propagation of the Trinity Basin's fish and wildlife resources. Since the precipitous fishery declines, Congress has enacted several pieces of legislation directing the restoration of fish populations in the Trinity River. In addition to various multi-jurisdictional efforts over the years, the U.S. Fish and Wildlife Service (Service), in conjunction with the Hoopa Valley Tribe, completed the Trinity River Flow Evaluation Study

(TRFES) in 1999 which sought to determine instream flows and other measures necessary to restore and maintain the Trinity River's fishery.

This Record of Decision (ROD) culminates nearly twenty years of detailed, scientific efforts, conducted over the course of the past four Administrations, and documents the selection of actions determined to be necessary and appropriate to restore and maintain the anadromous fishery resources of the Trinity River. These actions, and other potential alternative actions, have been described and fully evaluated pursuant to the National Environmental Policy Act of 1969, as amended (NEPA), and the California Environmental Quality Act (CEQA) in both a draft and the Final Environmental Impact Statement/Environmental Impact Report (FEIS/EIR) (October 2000b), herein incorporated by reference. The Service, the Bureau of Reclamation (Reclamation), the Hoopa Valley Tribe, and the County of Trinity, California jointly prepared the DEIS/EIR and the FEIS/EIR. The necessity for these actions results from the various statutory obligations of the Department as well as the federal trust responsibility to the Hoopa Valley and Yurok Indian Tribes.

For the reasons expressed in this ROD, the Department's agencies are directed to implement the Preferred Alternative as described in the FEIS/EIR and as provided below. This alternative best meets the statutory and trust obligations of the Department to restore and maintain the Trinity River's anadromous fishery resources, based on the best available scientific information, while also continuing to provide water supplies for beneficial uses and power generation as a function of Reclamation's Central Valley Project (CVP).

In making this decision, the information and analyses contained in the FEIS/EIR have been reviewed and considered in detail, including; 1) the various alternatives considered to achieve the statutory and trust obligations imposed upon the Department, 2) the environmental and other factors relevant to making this decision, 3) the mitigation available to reduce or eliminate negative impacts which could result from this decision, 4) the comments received on both the DEIS/EIR and the FEIS/EIR, and 5) the Biological Opinions from the Service and the National Marine Fisheries Service (NMFS), also incorporated by reference, which evaluate the impacts of implementing the Preferred Alternative to species listed pursuant to the Endangered Species Act. Sufficient legal authority exists to implement this decision.

This decision recognizes that restoration and perpetual maintenance of the Trinity River's fishery resources require rehabilitating the river itself, restoring the attributes that produce a healthy, functioning alluvial river system. Therefore, the components of the selected course of action include:

- Variable annual instream flows for the Trinity River from the TRD based on forecasted hydrology for the Trinity River Basin as of April 1st of each year, ranging from 369,000 acre-feet (af) in critically dry years to 815,000 af in extremely wet years;

- Physical channel rehabilitation, including the removal of riparian berms and the establishment of side channel habitat;

- Sediment management, including the supplementation of spawning gravels below the TRD and reduction in fine sediments which degrade fish habitats;

- Watershed restoration efforts, addressing negative impacts which have resulted from land use practices in the Basin; and

- Infrastructure improvements or modifications, including rebuilding or fortifying bridges and addressing other structures affected by the peak instream flows provided by this ROD.

The selected alternative also includes an Adaptive Environmental Assessment and Management (AEAM) Program. The AEAM Program, guided by a Trinity Management Council (TMC) established as part of this decision and by sound scientific principles, will ensure the proper implementation of these measures, conduct appropriate scientific monitoring and evaluation efforts, and recommend possible adjustments to the annual flow schedule within the designated flow volumes provided for in this ROD or other measures in order to ensure that the restoration and maintenance of the Trinity River anadromous fishery continues based on the best available scientific information and analysis.

This ROD and its attachments: 1) provide background information about the necessity for and development of the chosen action; 2) describes the alternatives considered in reaching the decision, including the environmentally preferred alternative; 3) summarizes the key provisions of the decision; 4) presents the rationale for and critical issues considered in making the decision; 5) describes mitigation measures available (and other environmental commitments) to avoid or minimize environmental harm that may result from implementing the decision; 6) reviews the public involvement process conducted during these efforts; and 7) discusses comments received on the FEIS/EIR.

II. Background

A. Historic Trinity River and its Resources

Historically, the Trinity River achieved attention and fame for its abundance of salmon and steelhead. Annual salmon runs in the Klamath Basin, including the Trinity River as its largest tributary, once reportedly totaled approximately 500,000 salmon. At the peak of the salmon cannery industry, which dominated the area at the turn of the 20th century, approximately 141,000 salmon were harvested and canned within the Klamath estuary (Snyder 1931).Various investigations made prior to construction of Lewiston and Trinity dams provide estimates of the historic numbers of fish in the Trinity. Estimates of the number of fall chinook salmon that migrated above the North Fork Trinity River before construction of the dams range from

approximately 19,000 to over 75,000 (TRFES,1999) (see FEIS/EIR, Appendix B for further details of the fishery resources of the Trinity).

The fishery and other resources of the Trinity River and the lower Klamath River Basins defined the life and culture of area Indians since time immemorial. Salmon and other fish historically provided the primary dietary staple for the Indians in the area; prior to non-Indian settlement in the basin, reports indicate that local Indians consumed over 2 million pounds of salmon annually. The fishery resources supported commercial and subsistence economies for the Indians and also played a significant role in their religious beliefs. Fishery resources of the area have been characterized as "not much less necessary to the existence of the Indians than the atmosphere they breathed." Blake v. Arnett, 663 F.2d 906, 909 (9th Cir. 1981) (quoting United States v. Winans, 198 U.S. 371, 381 (1905)). As previously described by the Department's Solicitor, a specific, primary purpose for establishing the reservations of the Hoopa Valley and Yurok Tribes in the mid- to late-1800s–which are bisected by the Trinity and lower Klamath Rivers, respectively–"was to secure to these Indians the access and right to fish without interference from others" in order to preserve and protect their right to maintain a self-sufficient livelihood from the abundance provided by the rivers (Memorandum from Solicitor to Secretary, Fishing Rights of the Yurok and Hoopa Valley Tribes, M-36979, at 15, 18-21 (Oct. 4, 1993)).

B. Planning and Construction of the CVP's Trinity River Division

Over time and with the increase of populations and development in California, particularly in the Central Valley, efforts focused on the Trinity River as a resource to supplement the needs of other areas of California. Initial plans to divert Trinity River water to the Sacramento River were included in the California State Water Plan in the 1930s, but later dropped. Proposals were reinitiated in the late 1940s, and the Department provided to Congress reports and findings on a proposed plan of development in the early 1950s. These reports indicated that more than 1.1 million af of inflow occurred on average from the upper Trinity River Basin above Lewiston. Based on these reports, Congress concluded that water "surplus" to the present and future water needs of the Trinity and Klamath Basins–then estimated at approximately 700,000 af and considered "wasting to the Pacific Ocean"--could be diverted to the Central Valley "without detrimental effect to the fishery resources." (H.R. Rep. No. 602, 84th Cong., 1st Sess. 4-5 (1955); S. Rep. No. 1154, 84 Cong., 1st Sess. 5 (1955)). In fact, the underlying reports suggested that development of the Trinity River Division, and the resulting diversions, would not only maintain but also improve fishery conditions in the Trinity River, with as little as 120,500 af of water per year from above Lewiston dedicated to the fishery. Based on these understandings, Congress passed legislation authorizing the Trinity River Division (TRD) on August 12, 1955 (Pub. L. No. 84-386) (1955 Act). Although Congress authorized the TRD as an integrated component of the CVP, section 2 of the 1955 Act specifically directed the Secretary of the Interior to ensure the preservation and propagation of fish and wildlife in the Trinity Basin through the adoption of appropriate measures.

C. Impacts Caused by the TRD and Early Efforts to Address those Impacts

Unfortunately, construction and operation of the TRD resulted in unintended, yet severely detrimental impacts to the Trinity River and its fish populations. Early studies suggested that low flows could possibly sustain spawning populations of salmonids below Lewiston (Moffet and Smith 1950, USFWS and CDFG 1956). These and other early studies focused more on chinook salmon spawning populations than on other species or lifestages, and did not entirely account for the geomorphic changes that would occur under a reduced flow in the mainstem. Relying upon these early studies, TRD diversions to the Central Valley averaged nearly 90 percent of the upper Trinity Basin inflow for the first ten years of full TRD operations, with the TRD exporting on average 1,234,000 af annually from the 1,396,000 af total average inflow into Trinity Lake (formerly Clair Engle Reservoir). Construction of the two dams on the Trinity River, Trinity and Lewiston Dams, also resulted in the loss of all upstream spawning and rearing habitat. As subsequent studies have shown, the TRD also caused the rapid degradation of fish habitats below the dams, through the elimination of gravels from above the dams necessary for spawning habitat and the inability of the substantially reduced and static flows from the TRD to flush fine sediments from the existing gravels. The resulting channelization of the river (in which riparian vegetation encroached upon the channel, trapped fine sediments, and formed fossilized berms) further degraded available habitats.

At the same time that fish were forced to use a much smaller amount of area, the quality of habitat below Lewiston began to decline almost immediately following completion of the dams. Gravels necessary for spawning habitat were trapped above the dams. Deep pools that were essential for holding adults began to fill with fine sediment. Since flows were no longer sufficient to move fine sediment from tributary flows out of the mainstem, gravel and cobble became compacted with sand and silt rendering spawning gravels unsuitable for salmon reproduction. As sand accumulated along the banks of the river, the shape of the Trinity below Lewiston changed from a meandering alluvial river with large cobble bars to a narrow, steep-sided channel. Moderate flows that resulted from tributary floods resulted in greatly increased water velocity in the mainstem without resultant increases in useable habitat because most flow was contained within the main channel and not connected with the historic floodplain.

Within a decade, salmon and steelhead populations declined significantly. Various efforts (including the formation of a task force of federal, state, tribal, and local agencies) began evaluating the effects on the Trinity River's fishery resources and the likely causes for these declines. The Service completed an EIS in 1980 which estimated fish population reductions of 60 to 80 percent since completion of the TRD. Subsequent studies have also indicated extensive reductions in fish populations (see Appendix B of the FEIS/EIR). The 1980 EIS attributed this severe and rapid depletion of fish populations to three causative factors: inadequately regulated harvest, excessive streambed sedimentation, and insufficient streamflows. The latter two elements impact key components of salmonid habitat. In fact, the EIS estimated the loss of fishery habitats in the Trinity River Basin to be 80 to 90 percent. Thus, shortly after construction of the TRD, the Trinity River no longer provided the abundant resources and pristine area that the public treasured and resident Tribes depended upon for physical and spiritual sustenance. Degradation of Trinity River fishery habitat was one of the reasons for listing of Southern Oregon/Northern California Coast (SONCC) coho salmon (*Oncorhynchus kisutch*) as threatened

under the Endangered Species Act (May 6, 1997, 62 FR 24588).

The 1980 EIS recognized that all factors attributed to salmonid losses must be addressed. Tribal harvest, commercial harvest and sport harvest have been restricted over time. The 1980 EIS also concluded, however, that insufficient streamflows represented the most critical limiting factor and that increasing flows was a necessary first step to the restoration of the Trinity River fisheries. Contemporary legal opinions of the Department considered the ability to increase streamflows in light of the 1955 Act and concluded that section 2 of that Act requires that the instream flow needs of the Trinity Basin must be met first prior to exporting water to the Central Valley (*e.g.*, Memorandum from the Solicitor to Assistant Secretary – Land and Water Resources, *Proposed Contract with Grasslands Water District* (December 7, 1979)).

D. 1981 Andrus Decision

The 1980 EIS did include interim flow recommendations, but also recommended a more complete analysis. Former Secretary of the Interior Cecil D. Andrus considered the findings of the 1980 EIS as well as the statutory and tribal trust responsibilities involved. With respect to the trust obligations of the Department, Secretary Andrus found that:

> the Hupa and Yurok Indians have rights to fish from the Trinity and Klamath Rivers . . . These rights are tribal assets which the Secretary, as trustee, has an obligation to manage for the benefit of the tribes. The Secretary may not abrogate these rights even if the benefit to a portion of the public from such an abrogation would be greater than the loss to the Indians.

Secretarial Issue Document, Trinity River Fishery Mitigation, at 3 (January 1981) (1981 SID). The Secretary also found that the trust obligation "includes both a duty to preserve the trust assets and to make them productive." The Secretary concluded that the statutory and trust obligations of the Department compelled the restoration of the Trinity River anadromous fishery to pre-TRD levels. Therefore, Secretary Andrus directed the Service to complete a 12-year study which would assess the effectiveness of flow and habitat restoration efforts and make recommendations on measures necessary to address the fishery impacts attributable to the TRD consistent with the Department's obligations.

E. Congressional Direction to Address the Impacts

At this same time, Congress also turned to the growing problems facing the Trinity River and its dwindling fishery resources. The first step came in 1980 with the passage of the Trinity River Stream Rectification Act (Pub. L. No. 96-335) which aimed to control sand deposition problems resulting from the degraded Grass Valley Creek watershed, a tributary of the Trinity River, and the inability of the low annual mainstem flows to flush these sediments through the system. In 1984, Congress passed the second, more critical step – the Trinity River Basin Fish and Wildlife Management Act (Pub. L. No. 98-541). The 1984 Act made findings similar to those in the 1980 EIS and recognized that TRD operations substantially reduced instream flows in the Trinity

River, resulting in degraded fish habitat and consequently a drastic reduction in anadromous fish populations. The 1984 Act directed the Secretary to develop a management program to restore fish and wildlife populations in the Basin to levels approximating those that existed immediately before TRD construction began. The program would include measures to rehabilitate fish habitats in the mainstem Trinity River and its tributaries below Lewiston Dam, increase the effectiveness of the Trinity River Fish Hatchery, and monitor fish and wildlife populations and the effectiveness of rehabilitation efforts. The program would also include any other activities necessary to achieve the restoration goals. Amendments to the 1984 Act redefined its restoration goals so that the fishery restoration would be measured not only by returning anadromous fish spawners, but also by the ability of dependent tribal and non-tribal fishers to participate fully in the benefits of restoration through meaningful harvest opportunities. (These restoration goals were reaffirmed through enactment of the Trinity River Fish and Wildlife Management Reauthorization Act of 1995, Pub. L. No. 104-143, May 15, 1996).

Congress provided the third step with the passage of the Central Valley Project Improvement Act (CVPIA) in 1992. The CVPIA listed among its purposes the need "to protect, restore, and enhance fish, wildlife, and associated habitats in the Central Valley and Trinity River Basins" and the need "to address impacts of the Central Valley Project on fish, wildlife, and associated habitats." Although the CVPIA includes several provisions related to the TRD, the primary Congressional direction occurs in section 3406(b)(23). Pending completion of the TRFES and implementation of it recommendations, Congress set the minimum flow volume in the Trinity River at not less than 340,000 af based on the supplemental Secretarial Decision signed by former Secretary of the Interior Manuel Lujan in 1991. The Trinity provision of the CVPIA specifically directed the completion of the 12-year study (TRFES) called for by Secretary Andrus "in a manner which insures the development of recommendations, based on the best available scientific data, regarding permanent instream fishery flow requirements and [TRD] operating criteria and procedures for the restoration and maintenance of the Trinity River fishery." Upon concurrence of the Secretary and the Hoopa Valley Tribe, the provision Congressionally mandates the Secretary to implement the recommendations from the study accordingly. That statute also provides that if the secretary and the Hoopa Valley Tribe do not concur, the flows in the Trinity River may be increased by an Act of Congress, appropriate judicial decree, or agreement between the Secretary and the Hoopa Valley Tribe.

F. Trinity River Flow Evaluation Study

Following the 1981 Secretarial Decision, the Service developed a plan of study and began the TRFES. Four annual flow volumes were to be evaluated under the TRFES: 140,000 af, 220,000 af, 287,000 af and 340,000 af. Release schedules for each of the water volumes were to be assessed for their ability to meet criteria necessary to restore and maintain the fishery resources of the Trinity River. The TRFES report was also to recommend specifically what actions should be continued, eliminated or implemented to mitigate fish population declines attributable to the TRD.

Flow evaluation studies were conducted annually between 1983 and 1994 by Service biologists

in Lewiston. Scientists and technicians from several agencies and tribes working under direction of the 1984 Act coordinated with TRFES biologists to implement recommendations developed during the TRFES annual studies.

The Service and Hoopa Valley Tribe released the TRFES in June 1999. Their report concluded that the flow "alternatives" identified for study in the 1981 Secretarial Decision cannot meet the biological and geomorphic habitat requirements necessary to restore naturally produced salmonid populations in the mainstem Trinity River. The TRFES recommended specific annual flow releases, sediment management, and channel rehabilitation to create and sustain a dynamic alluvial channel that will provide the necessary habitat. The Preferred Alternative, as described in the FEIS/EIR and summarized in this ROD, adopts the recommendations contained in the TRFES, is based on the extensive scientific studies contained in the TRFES, and is the most practical and scientifically based restoration strategy.

This ROD represents the culmination of over two decades of efforts aimed at understanding the necessary instream flow and physical habitat restoration requirements in order to restore the Trinity River anadromous fishery. Statutory requirements since 1955, based in large part upon the federal government's trust obligations to the Hoopa Valley and Yurok Tribes, require the restoration and maintenance of the Trinity River anadromous fishery resources to pre-dam levels. It is clear that restoration must provide for a meaningful fishery, not only for the Tribes, but also for commercial, sport, and recreational fishermen. These important resources represent both tribal trust and public treasures from which all should benefit - to restore the faith of our tribal beneficiaries and to improve the economic well-being of the Trinity Basin and North Coast as a whole.

III. NEPA/CEQA Process

NEPA requires federal agencies to analyze and disclose the environmental effects of their proposed actions. To ensure full compliance with NEPA, the Service initiated the environmental review process to develop and assess alternatives aimed at restoring the Trinity River mainstem fishery by publishing a Notice of Intent (NOI) to prepare an EIS in the Federal Register on October 12, 1994 (59 Fed. Reg. 25141). Shortly thereafter, Trinity County initiated the concurrent CEQA process by forwarding a Notice of Preparation (NOP) of an EIR to the State Clearinghouse on November 16, 1994.

The Service and Trinity County served as the designated lead agencies for NEPA and CEQA purposes, respectively, for this joint environmental review because of their particular roles in developing the TRFES and in permitting certain actions in Trinity County. Reclamation and the Hoopa Valley Tribe also served as co-lead agencies because of their respective interests in this action. In developing this environmental review, the joint lead agencies relied extensively on the participation of thirteen local, state, and federal agencies (either cooperating, responsible, or trustee agencies) as well as involvement by the Yurok and Karuk Tribes. This review also used six technical teams--led by representatives of the Service, Reclamation, Western Area Power

Administration (WAPA), U.S. Army Corps of Engineers (Corps), and the Bureau of Land Management (BLM)—to address key issues involved in this decision.

This review provided for significant public involvement throughout the process. Numerous public meetings occurred over the past six years to scope the process; recommend potential alternatives to be evaluated; identify critical issues, including potential environmental impacts from implementing various alternatives and other areas of concern; and to inform the public about the continuing progress for this review. Various issues and concerns identified included: fishery resources, Tribal trust obligations, CVP agricultural as well as municipal and industrial (M&I) water supply and reliability, vegetation and wildlife resources, water quality and in-river temperature, water management, CVP power generation, recreation and recreation economics, socio-economics, land use, Trinity River flooding, aesthetics (related to reservoir drawdown), ocean sport and commercial fishing, and upland watershed rehabilitation.

On October 19, 1999, the Service announced the availability of the DEIS/EIR and the commencement of the public comment period (64 FR 56364). The public comment period included a series of NEPA/CEQA public hearings held in Redding, Sacramento, Eureka, and Weaverville in November and December. Although the public comment period was originally scheduled to end on December 8, 1999, the Service twice extended the time for public comments (64 FR 67584, 64 FR 72357) to January 20, 2000. A substantial number of letters and postcards commenting on the DEIS/EIR were received from 6445 people and organizations (1009 letters and 5436 pre-printed postcards). A list of the commentors and the response of the agencies to the comments were presented the FEIS/EIR. On November 17, 2000 the Service announced the availability of the FEIS/EIR (65 FR 69512). See Appendix A for details of the public involvement process and responses to comments on the FEIS/EIR.

IV. Alternatives

In accordance with NEPA and CEQA, the FEIS/EIR identifies a range of reasonable alternatives, based on public input, scientific information, and professional judgment. The FEIS/EIR examined the affected environment and the environmental consequences for numerous alternatives: 1) No Action Alternative; 2) Maximum Flow Alternative; 3) Flow Evaluation Alternative; 4) Percent Inflow Alternative; 5) Mechanical Restoration Alternative; 6) State Permit Alternative, and the 7) Preferred Alternative. These are described in detail in the FEIS/EIR. In addition, all alternatives were compared to the No Action and Existing Conditions scenarios, as required by NEPA and CEQA, respectively. The FEIS/EIR considered but rejected other alternatives, also described in detail in the FEIS/EIR and summarized below.

No Action Alternative: represents ongoing activities and operations and the anticipated future condition of the affected environment in the year 2020 in the absence of project implementation. Flow releases to the Trinity River under current operations would remain unchanged which are 340,000 af annually.

Maximum Flow Alternative: would use all of the Trinity River inflows above the Trinity Dam to restore the river ecosystem through managed flows with no water exported to the Sacramento River system.

Flow Evaluation Alternative: is based on the recommendations in the TRFES and includes increased variable annual instream flow releases from Lewiston Dam, a coarse sediment introduction program, 47 new channel projects (mechanical channel rehabilitation), and implementation of an adaptive management program.

Percent Inflow Alternative: would approximate natural flow patterns, at a reduced scale, by releasing water into the Trinity River at a proportion of the rate it flows into the Trinity Reservoir.

Mechanical Restoration Alternative: would use the same water management as the No Action Alternative (i.e., 340,000 af), but would include constructing 47 new channel projects, mechanically maintaining these new projects as well as existing projects, dredging 10 pools in the Trinity River mainstem (most likely on an annual basis), and initiating a watershed protection program.

State Permit Alternative: would use the minimum flow levels as provided in the 1955 Act and specified in Reclamation's seven California water permits issued in 1959. Under this alternative, Trinity River instream flows would be reduced from the No Action levels of approximately 340,000 af of water per year to 120,000 af.

Preferred Alternative: consists of the Flow Evaluation Alternative which includes increased variable annual instream flow releases from Lewiston Dam, a coarse sediment introduction program, 47 new channel projects (mechanical channel rehabilitation), and implementation of an adaptive management program. Additionally, this alternative includes a watershed restoration program identical to the watershed protection efforts identified in the Mechanical Restoration Alternative.

Other Alternatives: Other alternatives were suggested in scooping for the draft EIS. Pages 2-35 through 2-42 of the draft EIS described eight alternatives considered but not forwarded for further consideration. The alternatives of harvest management, improving fish passage facilities, trucking fish around the dams, predator control, increased hatchery production, pumped storage, and channel augmentation using Weaver Creek were eliminated because they would not achieve the fishery restoration objectives. The alternative of removing Trinity and Lewiston Dams was not considered a viable alternative because of the environmental impacts, forgone benefits, and costs associated with dam removal. Other alternatives were suggested in public comments on the draft EIS/EIR and were evaluated in developing the FEIS/EIR. The Sacramento Municipal Utility District (SMUD), provided comments that recommended additional mechanical manipulations and alternative flow schedules. The SMUD alternative was evaluated and analyzed using the same fishery resource model as the other alternatives contained in the

FEIS/EIR. As shown in the FEIS/EIR (starting at page D2-37 and also in the specific responses to SMUD's comment letter) the SMUD alternative would require a significant amount of additional annual mechanical restoration in the channel, with associated increased costs, and would not substantially increase natural production above that anticipated under the Mechanical Restoration Alternative. As described in the FEIS/EIR(pages D2-35 through D2-38), the other suggested alternatives were either minor variations of alternatives already examined or would not meet the physical and biological objectives necessary for recovery of the fishery resources of the Trinity River and thus did not warrant further consideration in the FEIS/EIR.

Environmentally Preferred Alternative: The Preferred Alternative has been chosen as the Environmentally Preferred Alternative. The Preferred Alternative will restore the diverse fish habitat necessary to restore the anadromous fishery of the Trinity River. This alternative also causes the least damage to the biological and physical environment and best protects, preserves, and enhances historic, cultural, and natural resources. Implementation of the Preferred Alternative will not jeopardize the continued existence of any listed species under the Endangered Species Act, or destroy or adversely modify the critical habitat for any listed species under the Endangered Species Act. Additionally, the Preferred Alternative also includes a watershed management plan as well as measures to minimize and mitigate impacts (as outlined in section V(G) and Appendix C). For these reasons, the Preferred Alternative is the Environmentally Preferred Alternative.

V. Components of the Decision

For the reasons expressed in this ROD, the Department's agencies are directed, through the Trinity Management Council, to implement the Preferred Alternative as described in the FEIS/EIR and to implement the reasonable and prudent measures described in the NMFS and Service Biological Opinions. The Preferred Alternative incorporates the recommendations developed in the TRFES and evaluated under the Flow Evaluation Alternative, coupled with the additional watershed protection efforts identified in the Mechanical Restoration Alternative. Although the Secretary retains ultimate authority over this program, by this Record of Decision, the Trinity Management Council is established which will guide overall implementation of the management actions of the Implementation Plan.

Reclamation and the Service, as the Secretary's representatives on the Trinity Management Council, will be responsible for assuring that the restoration is carried out in a timely manner and that progress reports are submitted to the Department and to the Congress. On behalf of the Secretary, Reclamation and the Service should identify sources of funding necessary to implement the restoration program (FEIS/EIR at pages C-16 and C-17). As with all other federal programs, implementation is contingent upon Congress appropriating funds.

The suite of actions which make up the Preferred Alternative is designed to restore the Trinity River mainstem fisheries and avoid or minimize potential adverse effects. Implementation of the fishery restoration program will involve several components that will be implemented over time.

The Implementation Plan contained in the FEIS/EIR (FEIS/EIR pages C-1 through C-39) describes in detail the activities which comprise this comprehensive program for Trinity River mainstem fishery restoration and is adopted as part of this decision. Sufficient information exists for implementation of certain actions under this decision, and adjustments may be made to certain elements of the fishery restoration plan based on continuing scientific monitoring and studies called for in the Adaptive Environmental Assessment and Management Program (AEAM). The Trinity Management Council, will consult on these actions with the Hoopa Valley and Yurok Tribes and other responsible Federal, State and local jurisdictions, and private landowners as appropriate. The main elements of this Decision its Implementation Plan are summarized below:

A. Variable Annual Flow Regime

Reclamation will provide annual instream flows below Lewiston Dam according to the recommendations provided in the TRFES and adopted in the FEIS/EIR Preferred Alternative. The total volume of water released from the TRD to the Trinity River will range from approximately 369,000 af to 815,000 af, depending on the annual hydrology (water-year type) determined as of April 1st of each year (see Table 1, Figure 1, and ROD Appendix B). The recommended flow regimes link two essential purposes deemed necessary to restore and maintain the Trinity River's fishery resources: 1) flows to provide physical fish habitat (i.e., appropriate depths and velocities, and suitable temperature regimes for anadromous salmonids), and 2) flows to restore the riverine processes that create and maintain the structural integrity and spatial complexity of the fish habitats. The environmental effects of implementing this flow program have been thoroughly analyzed in the FEIS/EIR; no further environmental compliance is currently anticipated for implementing the flow program. Under this decision and the NMFS and Service biological opinions, Reclamation's Operating Criteria and Procedures for the TRD have been modified to implement the Preferred Alternative's flows (FEIS/EIR pp C1-C7).

Based on subsequent monitoring and studies guided by the Trinity Management Council, the schedule for releasing water on a daily basis, according to that year's hydrology, may be adjusted but the annual flow volumes established in Table 1 may not be changed. Maximum releases from Lewiston Dam will not exceed 6,000 or 8,500 cfs depending upon the completion of specific infrastructure modifications discussed in Section V.E.

Water-year Class	Volume (Acre-feet)	Peak Flow (cfs)	Peak Flow Duration (days)
Critically dry	369,000	1,500	36
Dry	453,000	4,500	5
Normal	647,000	6,000	5
Wet	701,000	8,500	5
Extremely wet	815,000	11,000	5

Table 1. Volume, Peak Flow and Peak Flow Durations for proposed Flow Schedules for Five Water-Year Types

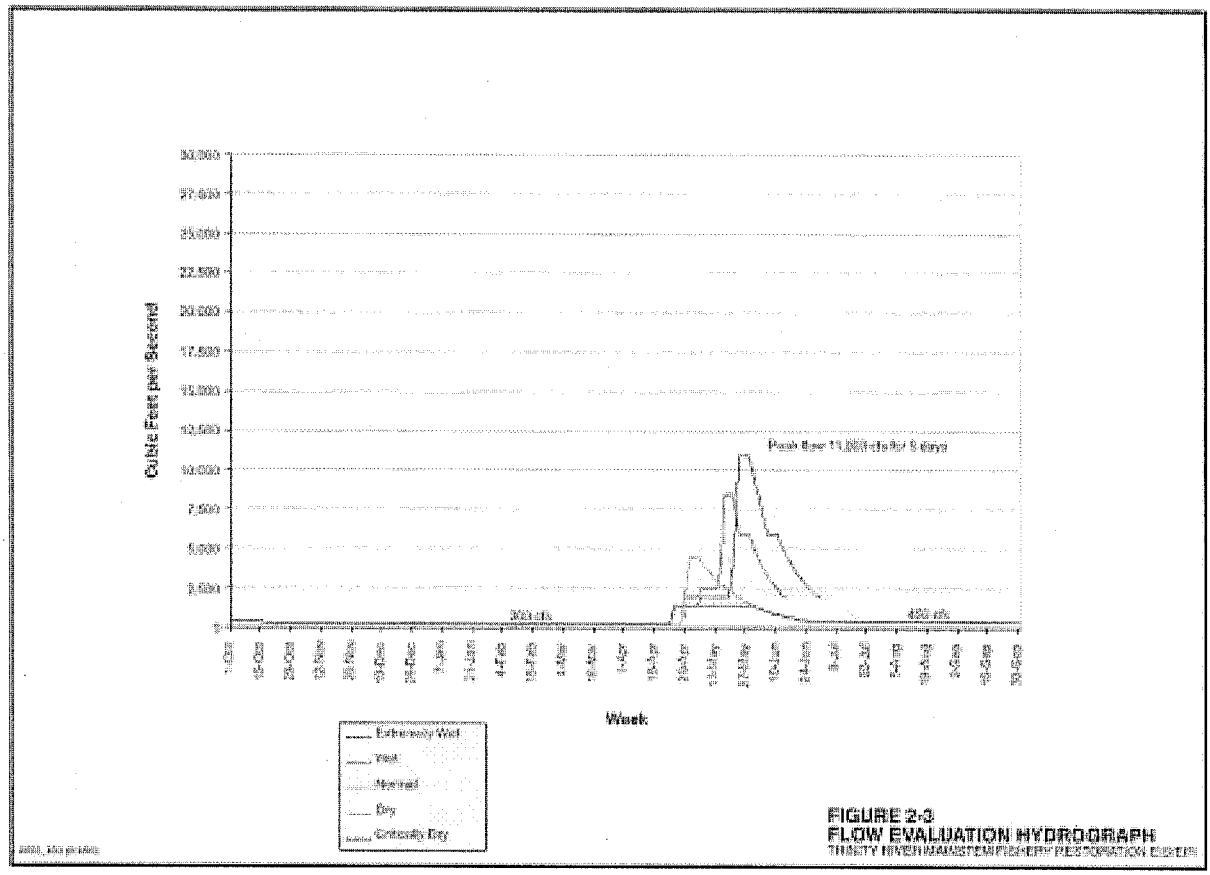

Figure 1. Flow Hydrograph for Five Water-Year Types (taken from DEIS, p. 2-19)

B. Mechanical Channel Rehabilitation

The Trinity Management Council will guide restoration and maintenance of channel morphology characteristics modeled based on pre-dam Trinity River channel morphology characteristics. This restoration, which will be implemented in phases over time, will require removal of riparian berms at 44 project areas, the establishment of side channel habitat at 3 sites and the use of increased flow releases to maintain habitat and promote the creation of alternate bar sequences. Additional environmental planning and environmental compliance steps will be performed as necessary in order to acquire all the necessary permits and other authorizations prior to implementation of this portion of the Preferred Alternative.

C. Sediment Management

The Trinity Management Council will guide a program to balance the recruitment of coarse and fine sediment of the upper river that has been disrupted by the construction and operation of the

TRD. Lewiston and Trinity dams trap all coarse sediment supply above Lewiston (gravel and cobble necessary for spawning and rearing habitat). A gravel supplementation program will be implemented in the reaches below the dam. Restoration of fluvial processes will require continued input of coarse sediment as gravels are moved and redeposited from increased flows creating necessary dynamic habitats. Required coarse sediment introductions are anticipated to average 10,300 cubic yards annually but could range from 0 to 67,000 cubic yards in any one year depending upon the water year type (Table 2). Reclamation will continue operation and maintenance of fine sediment (sand) catchment ponds on Grass Valley Creek to prevent fine sediment from reaching or remaining in the mainstem and degrading spawning and rearing habitat. Additional environmental planning and environmental compliance steps will be performed as necessary to acquire all the necessary permits and other authorizations prior to implementation of this portion of the Preferred Alternative.

Water Year	Coarse Sediment Introduction (yd^3/year)
Extremely Wet	31,000-67,000
Wet	10,000-18,000
Normal	1,800-2,200
Dry	150-250
Critically Dry	0

Table 2. Annual coarse sediment replacement estimates for the Lewiston Dam to Rush Creek Reach. Actual volume will be determined by modeled and measured transport each year.

D. Watershed Restoration

The Trinity Management Council will guide an upslope watershed restoration program to address the problems of excessive sediment input from many of the tributaries of the Trinity River resulting from land use practices. The watershed protection program of the Preferred Alternative includes road maintenance, road rehabilitation and road decommissioning on private and public lands within the Trinity River basin below Lewiston Dam, including the South Fork Trinity River basin. Approximately 80 percent of the lands within the Trinity basin are federally managed of which the USDA Forest Service administers approximately 95 percent and the Bureau of Land Management administers five percent. Of the remaining 20 percent privately-owned land in the basin, approximately half (10 percent of the total) are industrial timberlands, with the remainder being small private holdings. Additional environmental planning and environmental compliance steps will be performed as necessary in order to acquire all the necessary permits and other authorizations prior to implementation of this portion of the Preferred Alternative.

E. Infrastructure Improvement

Since construction of the TRD, human encroachment into the historic flood plain has occurred. Since infrastructure modifications represent a high priority activity for initiating flow changes, Reclamation will take appropriate steps in a timely manner to ensure that affected bridges, houses, and out-buildings are structurally improved or relocated or otherwise addressed before implementing recommended peak releases for Wet or Extremely Wet water years (8,500 and 11,000 cfs, respectively). Additional environmental planning and environmental compliance steps will be performed as necessary to acquire all the necessary permits and other authorizations prior to implementation of this portion of the Preferred Alternative.

F. Adaptive Environmental Assessment and Management Program

The Trinity Management Council will establish and guide implementation of an AEAM Program to monitor the physical and biological results of the implementation plan and guide the refinement of the flow schedules and other activities contained in this Decision/restoration plan to ensure that the ultimate goal of restoring the fishery resources of the Trinity River is achieved. Appendix C of the FEIS/EIR contains a detailed description of the AEAM.

The focus of the AEAM organization is the Trinity Management Council and an AEAM Team consisting of a Technical Modeling and Analysis Group and a Rehabilitation Implementation Group. The organization includes a support staff (AEAM Team) of engineers and scientists charged with assessing the Trinity River fishery restoration progress. The AEAM Team will coordinate independent scientific reviews of the AEAM organization and may recommend management changes based on annual assessments of the evaluation of rehabilitation and flow schedule activities. See FEIS/EIR Appendix pages C-19 though C-29 for a detailed description of the organization and roles and responsibilities of the Trinity Management Council. The Trinity Adaptative Management Working Group, a stake holder group whose participation in the program is described on page C-23 of FEIS/EIR, will be chartered under the Federal Advisory Committee Act

Nothing in this ROD is intended to preclude watershed restoration and monitoring, provided funding is available, below the confluence of the Trinity and Klamath Rivers. Because the TRFES and ROD focus on the Trinity River mainstem and Trinity Basin, watershed restoration and monitoring that benefit Trinity River fisheries below the confluence of the Trinity and Klamath Rivers may be considered by the Trinity Management Council.

G. Measures to Minimize and Mitigate Impacts

Since there may be some short-term impacts resulting from modifying river flows, channel rehabilitation, watershed protection measures, and infrastructure modifications, the Trinity Management Council will guide efforts to minimize or eliminate potential impacts prior to implementation. These are described in detail in the FEIS/EIR, listed in ROD Appendix C, and summarized below.

The reasonable and prudent measures identified in the NMFS and Service Biological Opinions will be implemented in an effort to avoid unauthorized take of listed species on the Trinity River, Sacramento Valley and Delta. The Service will coordinate with the NMFS regarding surveys for threatened coho salmon presence prior to implementation of habitat rehabilitation on the Trinity River. The NMFS and Service will coordinate work windows for these projects, as needed. All permits or other authorizations will be acquired and other environmental compliance requirements will be satisfied, as necessary, prior to initiation of any program activities.

Surveys for nesting northern spotted owls and bald eagles will occur in suitable habitat within a 0.5 mile radius of a project site prior to beginning work activities utilizing motorized equipment or chain saws. If a nesting owl is detected within a 0.25 mile radius, scheduled work activities will not occur from February 1 through July 9; if a nesting eagle is detected within a 0.5 mile radius, scheduled work activities will not occur from January 1 through August 31. Similar surveys will occur for watershed protection and restoration efforts in upland areas.

Measures will be taken to minimize any increased sedimentation/turbidity in the mainstem from mechanical disturbance, such as leaving a small berm at the edge of the channel to trap sediments until all other work is completed. Turbidity and other Clean Water Act standards, as identified by the Water Quality Control Plan for the North Coast Region, will be monitored and maintained. If standards are not met, construction activities will cease until such a time that operations or alternatives can be completed within compliance standards.

Construction of most project sites will involve removal of riparian vegetation at encroached berm areas. Construction of these channel rehabilitation sites, as presented in the FEIS/EIR, will include areas that are re-vegetated with willow, cottonwood and/or other shrub/tree species at more appropriate locations on the floodplains of the rehabilitation sites. Ultimately, natural revegetation and more proper riparian function will also occur at project sites as flow regime changes are implemented.

The lead agencies have executed a Programmatic Agreement (PA) under Section 106 of the National Historic Preservation Act with the Hoopa Valley Tribe, the State Historic Preservation Officer for California, and the Advisory Council on Historic Preservation. Under the terms of the PA, efforts will be undertaken to identify historic properties that may be affected by actions to be taken under the Preferred Alternative, and measures will be identified and implemented to avoid, minimize, or mitigate potential adverse effects upon those properties.

The segment of the Trinity River between Cedar Flat and Lewiston Dam (river miles 47.5 to 111.9) is a component of the National Wild and Scenic Rivers System ("System"). The primary outstanding remarkable value of this section of the Trinity River is recreational. Mitigation measures intended to address public safety from river flows that are too high or too low will be implemented as part of the Preferred Alternative (see ROD Appendix C).

VI. Rationale for Decision

As expressed above, the guiding principles for this decision emanate from various Congressional mandates as well as the federal government's trust responsibility to the Hoopa Valley and Yurok Indian Tribes. From the inception of the TRD, Congress directed this Department to ensure the preservation and continued propagation of the Trinity River's fishery resources and to divert to the Central Valley only those waters surplus to the needs of the Trinity Basin. With the drastic declines in anadromous fish and associated habitats following the TRD's construction and operations, Congress subsequently passed a series of legislative initiatives directing the Department to determine and implement flows and other measures necessary to restore and maintain these populations to levels which existed prior to the TRD's inception.

These statutory restoration and preservation directives also comport with the Department's trust responsibility to the Hoopa Valley and Yurok Tribes. These Tribes have federally recognized fishing rights which require sufficient water to make their fishing rights meaningful. The Department has a trust obligation not only to protect these trust assets but also to make them productive. Thus, the Department must manage these assets for the benefit of the Tribes so that they can enjoy a meaningful fishery—for ceremonial, subsistence, and commercial purposes. Because of the depressed fishery conditions subsequent to the TRD, however, the Tribes have been increasingly restricted from the enjoyment of their trust resources.

In light of these obligations, the Service, with vital support from the Hoopa Valley Tribe, conducted an extensive scientific effort to determine the appropriate flows and other measures necessary to restore and maintain the Trinity River's anadromous fishery. In section 3406(b)(23) of the CVPIA, Congress sought the final resolution of these issues in order to meet the federal trust responsibility and to meet the goals of prior legislation, calling for the completion of the scientific efforts initiated by Secretary Andrus and for the implementation of recommendations, based on the best available scientific information, regarding permanent instream fishery flow requirements and TRD operating criteria and procedures necessary for the restoration and maintenance of the Trinity River anadromous fishery. These statutory and trust responsibilities form the basis for the FEIS/EIR's purpose and need for this action—to restore and maintain the natural production of anadromous fish below the TRD.

All alternatives and issues raised during the environmental review process were fully considered and analyzed in making the decision set forth in this ROD. This ROD adopts the analysis contained in the FEIS/EIR and selects the Preferred Alternative as the necessary and appropriate action which best meets the statutory and trust obligations of the Department to restore and maintain the Trinity River's anadromous fishery resources. The following text summarizes the rationale for choosing this alternative and the critical issues considered in making this decision.

The best available scientific information indicates that restoring the attributes associated with a healthy alluvial river—such as alternative bar sequences, effective sediment transport, and dynamic riparian communities—will best achieve the restoration and maintenance of anadromous fish populations in the Trinity River. Restoring these geomorphic attributes will restore the diverse habitats that salmon and steelhead need to survive and successfully reproduce.

This will in turn lead to healthier and more sustainable salmonid populations (and other species) in the Trinity River Basin.

Based on the information and analysis in the FEIS/EIR, full implementation of the Preferred Alternative is necessary to restore the diverse fish habitats in the Trinity River below Lewiston Dam. Improved habitat conditions will in turn benefit rearing and juvenile life stages and improve juvenile emigration throughout the Trinity system and will also benefit anadromous species in the lower Klamath River Basin by providing increased juvenile outmigration flows and lower water temperature. These improved habitat conditions are expected to result in greater production and substantial increases in anadromous fish populations. Spawner escapement estimates for chinook and coho salmon and steelhead range from 64-74 percent of the Trinity River Restoration Program (TRRP) goals following implementation of the Preferred Alternative--approximately eight times greater than the estimate for the No Action Alternative. These increases in fish numbers are expected to ultimately result in self-sustaining anadromous fish populations in the Trinity River, providing a meaningful, viable fishery for the Hoopa Valley and Yurok Tribes as well as non-Indian fishing interests along the North Coast. For these reasons and others noted elsewhere, the Preferred Alternative represents the appropriate action necessary to restore and maintain the Trinity River's anadromous fishery in accordance with the Department's statutory and trust responsibilities.

In addition to the statutory and trust obligations imposed on the Department regarding the restoration of the Trinity River's fishery, the FEIS/EIR considered several additional factors critical in making this decision, including: compliance with the Endangered Species Act; continued TRD integration for CVP consumptive water use and power generation; socio-economic impacts; impacts to other wildlife; flood control; and additional statutory and other considerations.

ESA: Section 7(a) of the Endangered Species Act places an affirmative obligation on federal agencies to take actions that conserve endangered or threatened species, in addition to the general prohibition on federal activities which would jeopardize the continued existence of listed species or would destroy or adversely modify those species' critical habitats. When federal agencies propose actions which may affect a listed species, agencies must consult with either the Service or the NMFS to ensure that the proposed action will comply with the mandates of the ESA. Consistent with these responsibilities, Reclamation and the Service formally consulted with the appropriate agencies on the potential effects of implementing the Preferred Alternative to threatened and endangered fish and wildlife species in the Trinity River basin and the Sacramento River/Delta system in the Central Valley.

The Service's Biological Opinion concluded that implementation of the Preferred Alternative is not likely to jeopardize threatened delta smelt and threatened Sacramento splittail or adversely modify critical habitat for delta smelt. The Service also has concurred with the determination that implementing the Preferred Alternative will not likely adversely affect the bald eagle and northern spotted owl. Incidental take associated with implementation of the Preferred

Alternative of the threatened delta smelt and Sacramento splittail may be affected in a manner or extent not analyzed in the March 6, 1995 Biological Opinion on the Long-term Operation of the CVP and SWP; however, a reasonable and prudent measure to minimize the effects of incidental take due to implementation of the Preferred Alternative was developed. Implementation of this measure is non-discretionary.

The NMFS Biological Opinion finds that implementation of the Preferred Alternative is not likely to jeopardize Southern Oregon/Northern California coast (SONCC) coho salmon in the Trinity River, Sacramento River winter-run chinook salmon, Central Valley spring-run chinook salmon, or Central Valley steelhead. The NMFS has also determined that implementation of the Preferred Alternative, as proposed, is not likely to destroy or adversely modify designated critical habitat for these species.

The NMFS does anticipate that SONCC coho salmon habitat adjacent to and downstream of the channel rehabilitation projects associated with the Preferred Alternative may be temporarily degraded during construction. Construction of these projects, which will create a substantial amount of additional suitable habitat, may temporarily displace an unknown number of juvenile coho salmon but is not expected to result in an unauthorized take.

Because implementation of the proposed action is expected to result in substantial increases in coho salmon populations, implementation of the Preferred Alternative is not expected to appreciably reduce the likelihood of both survival and recovery of SONCC coho salmon in the wild. Similarly, because the expected outcome of implementation of the proposed action is greatly improved fish habitat conditions (including necessary coho salmon habitat), the value of critical habitat for both the survival and recovery of SONCC coho salmon will not be appreciably diminished.

The NMFS does not anticipate that the implementation of the proposed action will result in incidental take of Central Valley spring-run chinook or Central Valley steelhead, but does anticipate the Preferred Alternative will result in a minute increase in the level of Sacramento River winter-run chinook incidentally taken due to elevated water temperature in all years except critically dry years. In critically dry years, Reclamation would be required to reinitiate consultation pursuant to the existing Winter-run CVP-OCAP to develop year-specific temperature control plans. Implementation of reasonable and prudent measures specified in the NMFS BO to minimize the effects of incidental take are non-discretionary and will result in minimizing impacts of incidental take of SONCC coho salmon and Sacramento River winter-run chinook salmon in all years including critically dry years.

As described above, implementing the Preferred Alternative also will entail the development of more specific plans to implement non-flow related recommendations. These project proposals will serve as biological assessments for the proposed actions, providing necessary details about the actions and their impacts on affected listed and candidate species. Project-specific biological opinions will take into account the environmental benefits that accrue from the fishery restoration

program. As a result, the Service and NMFS anticipate that implementation of the overall fishery restoration program will streamline the ESA compliance process and, as actions are taken that benefit listed species, will ultimately reduce and, upon recovery of the listed species, eliminate the need for additional ESA compliance requirements.

TRD integration with CVP: The Preferred Alternative provides for the continued operation of the Trinity River Division of the CVP, including the continued export to the Central Valley of a majority of the waters flowing into the TRD (averaging 52%) and the continued generation of power. The Preferred Alternative, however, also conforms to the legal and trust mandates for the restoration and protection of the Trinity fishery which restrict the amount of water authorized for exportation to the Central Valley.

Since full operation of the TRD began in 1964, an average of 74% of the basin's inflow to the TRD (about 988,000 af) has been exported annually. In some years, approximately 90% of the annual inflow was diverted to the Sacramento basin. In recent years (1985-1997), annual exports have decreased to an average of 732,400 af; under the No Action alternative they were assumed to average 870,000 af. Currently, releases to the Trinity River are not less than 340,000 af annually. Under the Preferred Alternative, the TRD would be operated to release additional water to the Trinity River, and the timing of exports to the Central Valley would be shifted to later in the summer to help meet Trinity River instream temperature requirements. The Preferred Alternative would, on average, increase releases to the Trinity River by 75% above No Action levels. Long-term average water exports to the Central Valley would be 630,000 acre feet, or a reduction compared to the No Action alternative of approximately 240,000 acre feet (28 percent). Dry-period annual exports would be reduced by 160,000 acre feet (30 percent) compared to average dry period exports under the No Action alternative (see Table 3-3 in the DEIS).

Analyses conducted for the FEIS/EIR indicate that compared to the No Action alternative long-term average annual CVP deliveries may decrease by approximately 90,000 acre feet (2 percent), with reductions during the dry period projected to average 160,000 acre feet (4 percent). Annual Delta exports through the Tracy Pumping Plant were modeled to be reduced by 60,000 acre feet (2 percent) over the long-term average and 90,000 acre feet (4 percent) during the dry period. The reduction in available surface water supplies is anticipated to result in increased pumping of groundwater in areas where such pumping is economically viable given land use, crop mix, and groundwater quality. In some areas, the FEIS/EIR anticipated that water users may choose to pump additional groundwater in areas that are in an existing/projected area of overdraft; such additional pumping would be expected to result in localized groundwater elevation declines and land subsidence compared to the No Action alternative. In some areas where additional groundwater pumping is not assumed to be feasible, either because of economic considerations or ordinances which limit additional groundwater extraction, some lands may be fallowed at least on a temporary basis.

Although not the basis for this decision, improvements in water supply reliability to the Central Valley and in particular to south-of-Delta agricultural interests are being addressed in a separate

forum. On August 28, 2000, 18 Federal and State of California agencies, including the Department of the Interior, issued a Record of Decision for implementation of the CALFED Program. The CALFED Program was established to develop a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the San Francisco Bay/Sacramento-San Joaquin Delta (Bay-Delta) system. One of the goals of the CALFED Program is to improve the water supply reliability for the State of California's farms and growing cities that draw water from the Delta and its tributaries, including 7 million acres of highly productive farmland.

As part of the CALFED Record of Decision, the CALFED agencies anticipated that implementation of a variety of water management tools called for in the CALFED Program "will result in normal years in an increase to CVP south-of-Delta agricultural water service contractors of 15 percent (or greater) of existing contract totals to 65 to 70 percent." (CALFED ROD at 41). In the course of developing these target water allocations, and consistent with language contained in House Report 106-253, on the Energy and Water Appropriations Bill – Federal Fiscal Year 2000, certain CALFED agencies considered the potential that the Trinity River decision may affect CVP allocation as part of the CALFED Process, and concluded that it will not affect these targeted allocations to CVP south-of-Delta agricultural water service contracts. Ibid.

Implementation of the Preferred Alternative will have some impacts to power generation. The Preferred Alternative minimizes effects to CVP power generation to the extent practicable, while allowing for both fisheries restoration within the mainstem of the Trinity River and meeting Tribal Trust obligations. The total installed CVP capacity of approximately 2000 megawatts equates to four percent of California demand in 1999 and three percent of projected 2010 demand. The Trinity River Division (TRD) accounts for 25 percent of the total CVP installed capacity (approximately 497 megawatts is generated by the TRD), which equates to approximately one percent of current California demand, and less than one percent of projected 2010 demand. Upon full implementation of the Preferred Alternative, average annual CVP power generation would be reduced in the Trinity River Division, would be slightly reduced in the Shasta Division, and would remain approximately the same at Folsom, Nimbus and San Luis Powerplants. The Trinity River FEIS/EIR(using modeling results produced in cooperation with WAPA – see FEIS/EIR page 2-123, Table 3-49) identifies an average potential decrease in capacity of seven MW (compared to the average capacity of 1603 MW under No Action; a percentage change of less than four tenths of one percent of the total power capacity associated with the CVP) attributable to the Preferred Alternative.[1] Modeling simulations in the FEIS/EIR also indicate that the Preferred Alternative would reduce the average long-term energy production of the CVP by 318 GWh, approximately 6 percent, which equates to a reduction in the statewide electrical energy supply of approximately one tenth of one percent as a result of implementing the Preferred Alternative.

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[1]In certain rare circumstances, this decrease may be as high as 85 MW as a result of potential bypass operations, as discussed below.

Within the larger context of demand for electricity in the State of California, the reduced generating capacity associated with implementation of the Preferred Alternative is minimal when compared to the new generating capacity either under construction or fully approved for construction within the state. As of November 2000, according to the Western Systems Coordinating Council, approximately 3,700 megawatts (which represents more than the total generation capability of the entire CVP) of new powerplants, in the form of six individual projects, are either under construction or have gained full regulatory approval in California. An additional approximate 7,500 megawatts of new powerplants have applications under review, and a further 2,000 megawatts of new powerplants have recently initiated the application process. As additional plants come on line, the CVP's total contribution as a percentage of California's overall demand for electricity will decrease.

The Preferred Alternative includes peak releases of 11,000 cfs in extremely wet years and 8,500 cfs in wet years. Full implementation of the Preferred Alternative will be delayed due to the need to replace bridges and make other infrastructure modifications, which currently limit flows to no greater than 6,000 cfs. This is expected to take at least two years, thus allowing time for additional capacity to come on line before the Preferred Alternative can be fully implemented. Until infrastructure modifications can be implemented to increase the capacity of the channel, additional water may be available for power generation in wet and extremely wet years. Rainfall and run-off to support increased reservoir levels and power generation would typically be greater throughout the CVP system in such above-normal precipitation years.

Additionally, operating criteria will be established to allow WAPA to respond to any emergency situations in accordance with their obligations to the North American Electric Reliability Council, including exceptions for responding to various emergency situations consistent with Presidential Memorandum dated August 3, 2000, directing federal agencies to work with California to develop procedures governing the use of backup power generation in power shortage emergencies. These operational criteria are similar to those currently in place at Glen Canyon Dam that were implemented earlier this year.

The analysis contained in the FEIS/EIR shows that the net decrease in the value of CVP power production is estimated to be $5,564,000[2] annually under the Preferred Alternative when compared to the No Action alternative, a 3 percent decrease. When compared to modeled existing conditions, the net decrease in the value of CVP power production was estimated to be approximately $9,029,000 annually. The difference in the value of reduced power generation between the No Action and Existing Conditions, when compared to the Preferred Alternative, is mostly attributed to increased efficiency in deliveries to preference power customers, assumed to occur in the No Action alternative as a result of not renewing Contract 2948-A with PG&E in

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[2]Output from the CVP is predominately peaking in nature, since the system is energy constrained during adverse water conditions. Generating capacity from the CVP was valued based on the assumption that any change in the CVP's capacity would be offset by the construction of replacement generating capacity of a similar nature such as a combined-cycle combustion turbine.

2004. The other source of this difference is attributable to changes in delivery schedules of CVP water under the No Action alternative when compared to both Existing Conditions and the Preferred Alternative. High allocation customers would be subject to increases of $1.25 per megawatt-hour in average power cost, or $0.00125 per kilowatt-hour at the retail level. Average customers would likely see increases of $0.21 per megawatt-hour, or $0.00021 per kilowatt-hour at the retail level, as compared to the No Action alternative. Costs to the average customer are estimated at $0.33 per megawatt-hour or $0.00033 per kilowatt-hour, and $3.90 per megawatt-hour or $0.0039 per kilowatt-hour for preference customers when comparing the Preferred Alternative to Existing Conditions.

Historically, Reclamation has occasionally made low level releases at Trinity Dam to assist in meeting downstream water temperature requirements during particularly dry years. During such releases, all of the water that would normally pass through the power turbines is bypassed, and the generators are shut down. Such bypasses have been implemented when storage has dropped below a range of from 750,000 to 1,000,000 af, depending on specific conditions, and have occurred in the July through October time frame. In modeling such bypass releases, the analysis was conducted on a "worst case" basis. Modeling of the Preferred Alternative indicates that in the 69 year period of record, bypass operations could have occurred in up to 26 months, during the July through October period, generally in critically dry years. Bypass operations could eliminate an average of 85 MW of firm load carrying capacity in any month that bypass operations occur for the July through October period. Applying the replacement capacity value used in the analysis of costs in the EIS/EIR, the net impact associated with the loss of this capacity would be approximately $3,200,000 for the four month period. This additional cost, above existing costs related to implementing the Preferred Alternative, would be incurred in any year with the potential for bypass operations, because such potential eliminates the reliable use of the Trinity Power plant during the four month period. In contrast, modeling of the No-Action and Existing Conditions indicates that in the 69 year period of record, bypass operations could have occurred in up to 38 months, more often than the Preferred Alternative.

In addition, Trinity Public Utilities District power costs could increase as much as $107,000 annually. These increased costs could result in minor cost increases to individual power users. However, Congress recently passed legislation which may offset any potential increased costs to Trinity Public Utilities District by providing $540,000 annually to the Trinity Public Utilities District. Energy and Water Appropriations Act – FY 2001.

It is important to note that the power costs discussed above may be greater (or less) than the costs identified in the NEPA documentation given different assumptions, which are in part driven by the continued uncertainty related to market deregulation and natural gas price fluctuations, but the relative impacts between the alternatives analyzed remain unchanged.

Socio-economic impacts: The Preferred Alternative is intended to minimize adverse economic and social effects across the Trinity River Basin, Lower Klamath River Basin and the Central Valley Basin. The Trinity/Shasta regional economy would be positively affected by increases in

spending associated with increases in water-oriented recreation. Socio-economic benefits also occur from the Mendocino Coastal Area northwards, specifically job growth in the commercial fishing and seafood processing sectors. In contrast, the San Francisco Coastal Area, Sacramento Valley, San Joaquin Valley and Tulare Basin showed adverse economic and employment effects as a result of reduced water deliveries to agricultural contractors. The economic sectors most impacted would be miscellaneous retail, retail and wholesale trade, farm machinery and equipment, and cotton production. As discussed above, implementation of the Preferred Alternative is estimated to reduce CVP power generation by approximately 6 percent, resulting in an increase in power costs to CVP power customers.

Impacts to Other Wildlife: Other beneficial impacts to vegetation and wildlife include significant restoration of pre-dam riparian conditions along the Trinity River, increases in suitable habitat for the foothill yellow-legged frog, western pond turtle and the willow flycatcher, and long-term increases in wetland acreage. However, ground disturbing activities and construction of channel rehabilitation sites may result in loss of vegetation, special-status plant populations, or federal and state listed species. Therefore, site specific environmental reviews will be conducted prior to ground disturbance or construction. If special-status plant populations or federal and state listed species are present, actions shall be taken to avoid effects (*e.g.,* delay construction until after riparian nesting species fledge). In addition, there would be no significant impacts to riparian vegetation, wildlife, and wetlands anticipated in the Lower Klamath River Basin/Coastal Area.

Infrastructure Impacts: Peak releases associated with the Preferred Alternative would increase from 2,000 to 11,000 cfs in May in extremely wet years, on average one out of every eight years. These flows would result in several developed and undeveloped properties being impacted as well as necessitate the replacement of four bridges (Bucktail Bridge, Poker Bar Bridge, Salt Flat Bridge, and Treadwell Bridge). Appropriate infrastructure modifications will be completed to avoid or address any anticipated impacts to property prior to increasing peak flows in wet and extremely wet years, as detailed above.

Additional Statutory and Other Considerations: Implementation of the Preferred Alternative will also comply with all additional pertinent federal and state laws, including the Fish and Wildlife Coordination Act (FWCA), the National Historic Preservation Act (NHPA), the Wild and Scenic Rivers Act, and the Environmental Justice Executive Order 12898. Site-specific environmental reviews and permitting will be conducted and obtained as necessary.

Other Alternatives Considered in the FEIS/EIR: The other alternatives either fail to achieve the restoration and maintenance goals required by the Department's statutory and trust obligations or have other considerations that weigh against their selection. Analyses conducted for the TRFES and the FEIS/EIR as well as recent history provide substantial evidence that the No Action and State Permit alternatives do not meet the purpose and need for this action. Instead, these alternatives would perpetuate and even exacerbate the degradation of available fish habitats to the continued detriment of the Trinity River and its fish stocks.

The analyses also show that the Percent Inflow and Mechanical Restoration alternatives lack the ability to restore and maintain Trinity River anadromous salmonids successfully. Although these alternatives offer marginal benefits for fishery restoration, each fails to address adequately the mechanisms which led to the current plight, *i.e.*, the geomorphic impacts to the riverine environment resulting from severely reduced and relatively static flows from the TRD. The Mechanical Restoration alternative would continue the present minimum flow of 340,000 af from the TRD, a figure which represents the third-lowest flow on record prior to the TRD, and rely on constructing certain channel rehabilitation projects (also included in the Preferred Alternative and the Percent Inflow alternative) and maintaining these sites mechanically (*e.g.*, with heavy machinery). Not only have these essentially static and severely reduced flows proven harmful to the Trinity fishery to date, but reliance on perpetual mechanical restoration efforts would also prove harmful through the continuing physical disturbance of the riverine environment. Conversely, the Preferred Alternative would maintain these improved habitats more naturally through the managed, variable flow regime, which would flush the fine sediments which clog spawning gravels and prevent future riparian encroachment. The Percent Inflow alternative does offer a varied flow regime from the TRD based on the basin's annual hydrology, but this more limited annual flow for Trinity needs (40% of inflow above Lewiston) greatly hinders the ability to prevent continued degradation of the environment in the majority of water years. This likely result is particularly true for dry and critically dry water years—40 percent of the time--in which only 325,000 af or 165,000 af, respectively, would be released to the Trinity River. Thus, neither of these alternatives provides the tools necessary to meet the Department's statutory and trust obligations or to protect and ultimately recover ESA-listed species.

Although the Maximum Flow Alternative scored better than the Preferred Alternative in terms of estimated population increases, the Maximum Flow Alternative would exclude or excessively limit the Department's ability to address the other recognized purposes of the TRD, including water diversions to the CVP and power production in the Trinity Basin. The best available science presently indicates that the Department's statutory and trust obligations can be achieved while still meeting Congressional intent to have the TRD integrated with the CVP to the extent that diversions to the CVP do not impair in-basin needs.

For all of these considerations, particularly the Department's statutory and trust obligations, implementing the Preferred Alternative represents the necessary and appropriate action in order to restore and maintain the Trinity River's anadromous fishery. As expressed above, the statutory directives and trust responsibility require the restoration of a meaningful, viable fishery from which the Hoopa Valley and Yurok Tribes can exercise their federally reserved fishing rights and the non-Indian commercial and sport fishers can also share in the benefits of these efforts. Based on the best available scientific information, this alternative meets these statutory and trust obligations, providing the best means to achieve the restoration objectives while continuing to operate the TRD as an integrated component of the CVP. This alternative is considered to be the environmentally preferable alternative in that this alternative causes the least damage to the biological and physical environment and best protects, preserves, and enhances historic, cultural, and natural resources. Further, by selecting this alternative for implementation

with its associated monitoring and mitigation measures, all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted.

VII. Tribal Concurrence

In accordance with CPVIA Section 3406(b)(23)(B), this decision and the underlying recommendations were reviewed with the Hoopa Valley Tribe through the Tribal Chairman and the Tribal Council. By Tribal Resolution # 00-94 dated December 18, 2000, the Hoopa Valley Tribe formally concurred in and agreed with the underlying recommendations and this decision.

Duane Sherman, Sr. Chairman
Hoopa Valley Tribal Council

12/19/00
Date

VIII. Secretarial Directive

The Department's agencies are directed to implement this decision as outlined in this Record of Decision, and described in detail in the FEIS/EIR.

Bruce Babbitt
Secretary of the Interior

December 19, 2000
Date

Appendix A: Public Involvement and Responses to comments on the FEIS/EIR
Appendix B: Lewiston Dam Releases to the Trinity River
Appendix C. Measures to Minimize and Mitigate Impacts Associated with Implementation of the Preferred Alternative
Appendix D. Hoopa Valley Tribal Resolution # 00-94

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Appendix A. Public Involvement and Responses to comments on the FEIS/EIR.

I. Public Involvement

The EIS/EIR was undertaken to evaluate and disclose the potential environmental benefits and adverse impacts resulting from proposed actions to restore the fishery. The DEIS/EIR was prepared with the support of the Hoopa, Karuk, and Yurok Tribes and thirteen local, state and federal agencies (either cooperating, responsible, or trustee agencies). The effort to collect, analyze and present technical information was further complemented by six technical teams lead by representatives of the Service, Reclamation, Western Area Power Administration (Western), U.S. Army Corps of Engineers (Corps), and the Bureau of Land Management (BLM).

The Service, as the designated lead agency under NEPA, began the public process on October 12, 1994 when it published a Notice of Intent (NOI) to prepare an EIS in the Federal Register (59 FR 25141). Shortly thereafter, Trinity County, the responsible CEQA agency, followed this action by forwarding a Notice of Preparation (NOP) of an EIR to the State Clearinghouse on November 16, 1994.

Soon after the publication of the NOI, a series of joint NEPA/CEQA scoping meetings were held in Willows, Weaverville, Hoopa and Eureka, California between October 27, 1994 and November 3, 1994. Public input received during the meetings and subsequent follow-up letters helped the agencies identify potential environmental impacts and areas of concern. These concerns included: fishery resources, Tribal trust obligations, Central Valley Project (CVP) agricultural and municipal and industrial (M&I) water supply and reliability, vegetation and wildlife resources, water quality and inriver temperature, water management, CVP power generation recreation and recreation economics, socioeconomics, land use, Trinity River flooding, aesthetics (related to reservoir drawdown), ocean sport and commercial fishing, and upland watershed rehabilitation.

As the DEIS/EIR was being prepared, additional public meetings were held between March 25 and April 4, 1996 in Orleans, Eureka, Hoopa, Weaverville, Willows, Fresno, Sausalito, California and Coos Bay, Oregon. This series of meetings provided the public with additional opportunities for comment and included a discussion of preliminary TRFES recommendations, EIS/EIR alternatives, impact areas and analytical methods. In addition, the meetings provided updates on the project schedule and recent legislative actions.

A second round of public meetings were held on October 28, 29 and 30, 1997, at Hoopa, Weaverville, California and Sacramento, California respectively, to provide an update on the alternatives and information on preliminary analysis results. In addition, a public workshop was held in Weaverville on February 17, 1998, to present information on proposed significance criteria that had been developed to help in identifying the significance of the various impacts.

A series of newsletters mailed out to a large number of interested parties in January 1996, September 1996, and October 1997 provided additional information. Distribution of news and information concerning the DEIS/EIR was supplemented in the fall of 1998 when the Service posted an Internet web page at http://www.ccfwo.r1.Service.gov/ccfwo/treis.htm. Trinity County also provided electronic access to information concerning Trinity River activities by maintaining a public list server known as "env-trinity" available through subscription to majordomo@igc.apc.org.

On October 19, 1999, the Service published a notice in the Federal Register announcing the availability of the draft EIS/EIR and the commencement of the public comment period in the Federal Register (64 FR 56364). In addition, news releases and articles announcing the availability of the DEIS/EIR were published in several area newspapers including the Trinity Journal, Sacramento Bee, San Francisco Chronicle, Eureka Times-Standard and the San Jose Mercury News. The document was made available for public review at libraries and other public places in California and in Coos Bay, Oregon and Portland, Oregon. In addition, 692 hard copies of the document along with 408 copies of the Executive Summary and 204 electronic versions of the DEIS/EIR on CD-ROM were distributed to interested individuals, organizations and agencies. A complete series of technical appendices were also included as part of the CD ROM and hard copy versions of the appendices were also made available to the public and interested agencies on request.

The public comment period included a series of joint NEPA/CEQA public hearings held in Redding, Sacramento, and Eureka on November 16, 18, and 23, 1999, respectively. In addition, the Trinity County Board of Supervisors held a CEQA hearing in Weaverville, California. These meetings provided the public with an opportunity to submit both written and oral comment to the lead agencies. The comment period was originally scheduled to end on December 8, 1999. However, on December 2, 1999 the Service extended the comment period until December 20, 1999 (64 FR 67584). Public meetings were again held in Sacramento, California on December 6, 1999 and in Weaverville, California on December 7, 1999. On December 27, 1999 the Service published a notice in the Federal Register which reopened the public comment period until January 20, 2000 (64 FR 72357). Public notices regarding the hearings and extensions were also published in the aforementioned newspapers and the Redding Record Searchlight.

In response to the public outreach effort, the lead agencies received a substantial number of letters and postcards commenting on the DEIS/EIR. In total, the lead agencies received written comments from 6445 people and organizations (1009 letters and 5436 preprinted postcards). A list of the commentors and the response of the agencies to each of those comments was presented in the FEIS/EIR. On November 17, 2000 the Service announced the availability of the Final EIS/EIR (65 FR 69512).

II. Responses to Comments on the FEIS/EIR

Several hundred letters were received after publication of the FEIS pertaining to individuals' preference for alternative implementation, implementation funding, and Executive Order 12898. No information

was received that would alter the conclusions contained in the FEIS/EIR or in the Service's and NMFS's biological opinions. Additional responses are provided below on the issues raised for clarification purposes.

Issue: Alternatives for Implementation

The Department received 423 letters requesting the Secretary implement the Maximum Flow Alternative or if the Preferred Alternative is selected and funds not appropriated for implementation, provide in the Record of Decision for an increase in flows to those of the Maximum Flow regime. The Department also received 123 additional letters supporting only the Maximum Flow Alternative, and 25 letters supporting increase flows, but not specifying how much of an increase.

The Department also received 43 letters supporting the Preferred Alternative but only in its current form without modification expressing the sentiment that by agreeing to export 53% of the water from the Trinity River to the Central Valley, a compromise has been struck.

Several of the letters mentioned the need to appropriate funding so increased flows and implementation could occur. Several also mentioned the Trinity Management Council, and that it should be lead by someone who is unaffiliated with Northern California water issues, and who would be highly respected by the environmental conservation community.

The Department received two letters opposing implementation of the Preferred Alternative. The letters assert that the Department's analysis was biased in certain respects and failed to adequately consider a number of issues, including the Sacramento Municipal Utility District's proposed alternative, impacts to species listed under the ESA, lost power generation and acquisition of replacement power supplies, and that circumstances surrounding California's deregulated energy market necessitate preparation of a supplemental EIS/recirculation of EIR.

Response: Individuals' preferences for the Maximum Flow Alternative, the Preferred Alternative and the SMUD proposed alternative are duly noted and in general have been addressed previously in the FEIS. The Preferred Alternative has been adopted for implementation for the reasons stated above. It should be noted that implementing the Maximum Flows regime would also require extensive funds due to the bridges and structures that would need to be relocated along with the estimated $23 to 72 million it would take to retrofit Trinity Dam for those releases.

With regard to the comment about current electrical energy issues in California, it should be noted that implementation of the Preferred Alternative will not have any immediate impacts to power supplies in California and that, as recognized above, substantial new supplies are expected to be developed in California over the next few years. Moreover, the issues raised through the comments will not result in impacts to a significant extent not already considered in the FEIS/EIR.

As a whole, the Preferred Alternative best meets the purpose and need to restore and maintain the Trinity River fishery in accordance with the Department's statutory and trust obligations. The Preferred Alternative also presents a balanced approach that allows the continued integration of the TRD to the extent consistent with Congressional mandates and based on the best available scientific information The selection of the Preferred Alternative flows from sound scientific reasoning and thorough analysis of all of the alternatives.

Issue: Executive Order 12898

Several letters included comments pertaining to Executive Order 12898 - "...requires agencies to identify and address disproportionately high and adverse human health or environmental effects of their actions on minorities and low-income populations and communities as well as the equity of the distribution of the benefits and risks of their decisions." These letters expressed the view that the current transfer of water is a violation of law.

Response: Comments noted. This Decision directs the Preferred Alternative to be implemented which, as described in the FEIS, is consistent with Executive Order 12898.

Appendix B. Lewiston Dam Releases to the Trinity River (FEIS, pages C-37 and C-38)

Attachment 1 Lewiston Dam Releases to the Trinity River					
Date	**Extremely Wet**	**Wet**	**Normal**	**Dry**	**Critically Dry**
01-Oct thru 15-Oct	450	450	450	450	450
16-Oct thru 21-Apr	300	300	300	300	300
22-Apr	500	500	500	300	300
23-Apr	500	500	500	300	900
24-Apr	500	500	500	300	1,500
25-Apr	500	500	500	300	1,500
26-Apr	500	500	500	300	1,500
27-Apr	500	500	500	900	1,500
28-Apr	500	500	500	1,500	1,500
29-Apr	1,500	2,000	2,000	2,500	1,500
30-Apr	1,500	2,000	2,500	3,500	1,500
01-May thru 05-May	1,500	2,000	2,500	4,500	1,500
06-May	2,000	2,500	4,000	4,306	1,500
07-May	2,000	2,500	6,000	4,121	1,500
08-May	2,000	2,500	6,000	3,943	1,500
09-May	2,000	2,500	6,000	3,773	1,500
10-May	2,000	2,500	6,000	3,611	1,500
11-May	2,000	2,500	6,000	3,455	1,500
12-May	2,000	2,500	5,784	3,307	1,500
13-May	2,000	2,500	5,574	3,164	1,500
14-May	2,000	3,000	5,373	3,028	1,500
15-May	2,000	1,000	5,178	2,897	1,500
16-May	2,000	6,000	4,991	2,773	1,500
17-May	2,000	8,500[a]	4,811	2,653	1,500
18-May	2,000	8,500[a]	4,637	2,539	1,500

19-May	2,000	8,500[a]	4,469	2,430	1,500
20-May	3,000	8,500[a]	4,307	2,325	1,500
Date	**Extremely Wet**	**Wet**	**Normal**	**Dry**	**Critically Dry**
21-May	4,000	8,500[a]	4,151	2,225	1,500
22-May	6,000	7,666[a]	4,001	2,129	1,500
23-May	8,500[a]	6,833[a]	3,857	2,037	1,500
24-May	11,000[a]	6,000	3,717	1,950	1,500
25-May	11,000[a]	6,000	3,583	1,866	1,500
26-May	11,000[a]	6,000	3,453	1,785	1,500
27-May	11,000[a]	6,000	3,328	1,708	1,500
28-May	11,000[a]	6,000	3,208	1,635	1,500
29-May	10,444[a]	5,690	3,092	1,564	1,500
30-May	9,889[a]	5,322	2,980	1,497	1,497
31-May	9,333[a]	4,977	2,872	1,433	1,433
01-Jun	8,778[a]	4,655	2,768	1,371	1,371
02-Jun	8,222[a]	4,354	2,668	1,312	1,312
03-Jun	7,667[a]	4,072	2,572	1,255	1,255
04-Jun	7,111[a]	3,809	2,479	1,201	1,201
05-Jun	6,556[a]	3,562	2,389	1,150	1,150
06-Jun	6,000	3,332	2,303	1,100	1,100
07-Jun	6,000	3,116	2,219	1,053	1,053
08-Jun	6,000	2,915	2,139	1,007	1,007
09-Jun	6,000	2,726	2,062	964	964
10-Jun	6,000	2,550	2,000	922	922
11-Jun	5,664	2,385	2,000	883	883
12-Jun	5,359	2,230	2,000	845	845
13-Jun	5,071	2,086	2,000	808	808
14-Jun	4,798	2,000	2,000	774	774

15-Jun	4,540	2,000	2,000	740	740
16-Jun	4,295	2,000	2,000	708	708
17-Jun	4,064	2,000	2,000	678	678
18-Jun	3,845	2,000	2,000	649	649
Date	**Extremely Wet**	**Wet**	**Normal**	**Dry**	**Critically Dry**
19-Jun	3,638	2,000	2,000	621	621
20-Jun	3,443	2,000	2,000	594	594
21-Jun	3,257	2,000	2,000	568	568
22-Jun	3,082	2,000	2,000	544	544
23-Jun	2,916	2,000	2,000	521	521
24-Jun	2,759	2,000	2,000	498	498
25-Jun	2,611	2,000	2,000	477	477
26-Jun	2,470	2,000	2,000	450	450
27-Jun	2,337	2,000	2,000	450	450
28-Jun	2,212	2,000	2,000	450	450
29-Jun	2,093	2,000	2,000	450	450
30-Jun thru July 9	2,000	2,000	2,000	450	450
10-July	1,700	1,700	1,700	450	450
11-July	1,500	1,500	1,500	450	450
12-July	1,350	1,350	1,350	450	450
13-July	1,200	1,200	1,200	450	450
14-Jul	1,,050	1,050	1,050	450	450
15-July	950	950	950	450	450
16-July	850	850	850	450	450
17-July	750	750	750	450	450
18-July	675	675	675	450	450
19-July	600	600	600	450	450

20-July	550	550	550	450	450
21-July	500	500	500	450	450
22-July to 30-Sept	450	450	450	450	450
Acre-Feet (Thousands)	**815.2 (721.1)[b]**	**7,01.0 (671.3)[b]**	**646.9**	**452.6**	**368.6**

[a]Releases restricted to 6,000 cfs or 8,500 cfs until appropriate infrastructure improvements have occurred.

[b]Annual allocations that reflect a maximum Lewiston Dam release of 6,000 ft 3/s until floodplain improvement projects are completed.

Appendix C. Measures to Minimize and Mitigate Impacts Associated with Implementation of the Preferred Alternative

Table 1 displays the project implementation impacts/ issues and minimization and mitigation measures which Reclamation and the Service have committed to perform under this Record of Decision followed by additional explanation.

Table 1. Impacts and Preferred Alternative Mitigation Commitments

Impact/Issue	Mitigation Commitment
The channel rehabilitation projects would result in short-term Trinity River turbidity impacts. Impacts to recreation activities from turbidity associated with the construction of the channel rehabilitation sites.	A 401 water quality certification would be obtained from the NCRWQCB, and a construction procedure would be developed to meet the Basin Plan turbidity requirements. Monitoring would be conducted as specified by the NCRWQCB, and efforts would be taken to reduce levels if they are 20 percent or more over background (e.g., isolating the work area and/or slowing or halting construction until the 20-percent level is achieved). Notify individual diverters with state diversion permits within 2 miles downstream of any mechanical channel rehabilitation activity at least 2 days in advance of activities likely to produce turbidity.
Potential violations of temperature objectives and carryover storage criteria established in the Sacramento River winter run chinook salmon Biological Opinion.	Implement NMFS biological opinion Reasonable and Prudent Measures and Terms and Conditions.
Violate state temperature objectives established for the Trinity River.	Consultation with NMFS would occur pursuant to Trinity River coho salmon biological opinion. Bypassing the Trinity Power plant could offset impacts to temperature in the Trinity River by pulling colder water from lower in the reservoir.
Impacts to Delta smelt and Sacramento splittail as a result of changes in Delta inflow to export ratios.	Implement Service biological opinion Reasonable and Prudent Measures and Terms and Conditions.

Ground disturbing activities could result in a loss of vegetation and special-status plant populations.	Conduct site-specific environmental reviews prior to mechanical ground-disturbing activities. Such reviews shall, when appropriate, include surveys for federal and state endangered, threatened, and proposed species, or for other species if required by permitting agencies (e.g., USFS). If such species are present, actions shall be taken to avoid impacts. Develop and implement a revegetation plan for all ground-disturbing activities (excluding channel rehabilitation sites). Revegetation shall use plant species found adjacent to the impact area or from similar habitats, subject to landowner andor agency concurrence. Replacement ratios and monitoring plans, if determined necessary, will be developed in cooperation with the Corps, Service, and CDFG.
Direct mortality of foothill yellow-legged frogs or egg masses, adult western pond turtles and hatchlings, or willow flycatcher nests and young during construction of the channel rehabilitation sites.	Conduct site-specific environmental reviews prior to mechanical ground-disturbing activities. Such reviews shall, when appropriate, include surveys for federal and state endangered, threatened, and proposed species, or for other species if required by permitting agencies (e.g., USFS). If such species are present, actions shall be taken to avoid impacts (e.g., delay construction until after willow flycatcher chicks fledge).
The mechanical channel rehabilitation projects could impact wetland resources.	Conduct pre-construction delineation of wetland areas at sites that may contain wetlands. Consult with the Corps on potential impacts and appropriate mitigation, if any, to wetland resources.
Impacts to public safety from river flows that are too high or too low (i.e., outside the preferred range for boating).	Post signs at river access points showing daily flows. Offer a toll-free telephone number so recreationists can call to obtain daily flow information. Post daily flows on the Internet.
Increased flooding of Trinity River structures and/or residences.	Reclamation will take appropriate steps in a timely manner to ensure that affected bridges, houses, and out-buildings are structurally improved or relocated or otherwise addressed before implementing recommended peak releases for Wet or Extremely Wet water years (8,500 and 11,000 cfs, respectively).

Impacts to cultural resources.	Conduct cultural resource surveys of project areas (including areas of ancillary activities, such as staging areas, gravel mining areas, etc.) prior to ground disturbance. Areas containing cultural resources shall be demarcated and activities planned to avoid these areas. If cultural resources cannot be avoided, unavoidable impacts on significant resources would be mitigated for in a manner that is deemed appropriate. Mitigation for significant resources may include, but is not limited to, data recovery, public interpretation, performance of a Historic American Building Survey or Historic American Engineering Record, or preservation by other means.
Spawning gravel placement and other heavy equipment work associated with the alternatives would result in PM10 impacts as a result of fugitive dust.	Implement a dust control program, which includes: watering of stockpiles, roads, etc. as necessary, and identify an individual to monitor dust control and to respond to citizen complaints, if any.

In order to minimize and mitigate the effects of project implementation to listed species, the NMFS and the Service included reasonable and prudent measures and terms and conditions as part of their respective biological opinions (National Marine Fisheries Service, 2000; U.S. Fish and Wildlife Service, 2000).

The NMFS biological opinion listed the following reasonable and prudent measures as necessary and appropriate for the Service and Reclamation to implement in order to minimize impacts of incidental take of SONCC coho salmon and Sacramento River winter-run chinook salmon.

As contained in the NMFS biological opinion, the following reasonable and prudent measures are necessary and appropriate to minimize impacts of incidental take of SONCC coho salmon and Sacramento River winter-run chinook salmon.

The USFWS and Reclamation shall:

1. Implement the flow regimes included in the proposed action (as described in TRMFR DEIS, page 2-19, Table 2-5) as soon as possible;

2. Ensure that the NMFS is provided the opportunity to be represented during implementation of the Adaptive Environmental Assessment and Management Program;

3. Ensure that the replacement bridges and other infrastructure modifications, needed to fully implement the proposed flow schedule, are designed and completed as soon as possible;

4. Periodically coordinate with the NMFS during the advanced development and scheduling of the habitat rehabilitation projects described in the TRMFR DEIS;

5. Complete "the first phase of the channel rehabilitation projects" (USFWS and BOR, 2000) in a timely fashion;

6. Implement emergency consultation procedures during implementation of flood control or "safety of dams" releases from Lewiston Dam to the Trinity River;

7. In dry and critically dry water year types, Reclamation and USFWS shall work cooperatively with the upper Sacramento River Temperature Task Group to develop temperature control plans that provide for compliance with temperature objectives in both the Trinity and Sacramento rivers.

The USFWS and Reclamation must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1.a. Following completion of the Record of Decision addressing the proposed action, Reclamation shall immediately implement the components of the proposed flow schedule (as described in the TRMFR DEIS, page 2-19, Table 2-5) equal to or less than 6,000 CFS, and implement the entire flow schedule as soon as possible (i.e., after infrastructure modifications are completed);

1.b. As necessary infrastructure modifications are made, Reclamation shall incrementally implement higher Trinity River flows (consistent with the proposed flow regime), e.g., potentially releasing up to 8,500 CFS after some bridge modifications, but prior to completion of the "Bucktail" and "Poker Bar" bridge replacements (see USFWS and BOR, [2000]);

1.c. Reclamation shall provide two reports per year detailing flows released into the Trinity River below Lewiston Dam; reports will be provided to the NMFS (1655 Heindon Road, Arcata, CA 95521) by August 31, and March 31, annually;

2.a. The USFWS and Reclamation shall provide the opportunity for full NMFS participation on the technical team ('designated team of scientists' [USFWS and BOR 2000], 'technical modeling and analysis team' [TRMFR DEIS]) offering restoration program recommendations, and on the Trinity Management Council policy group (described in the TRMFR DEIS and USFWS and BOR [2000]);

3.a. The replacement bridges and other infrastructure modifications needed to fully implement the proposed flow schedules shall be completed by the end of calendar year 2002 (consistent with the schedule outlined in USFWS and BOR [2000]);

4.a. The USFWS and/or Reclamation shall meet with the NMFS annually in March to coordinate during the advanced development and scheduling of habitat rehabilitation projects, including mainstem channel rehabilitation projects, sediment augmentation program, and dredging of sediment collection pools;

4.b. The USFWS and/or Reclamation shall provide for review of individual mainstem channel rehabilitation projects via the technical team ('designated team of scientists' [USFWS and BOR 2000], 'technical modeling and analysis team' [TRMFR DEIS]) or equivalent group, and provide a written recommendation to the NMFS whether the projects are similar to those described in the TRMFR DEIS and should be covered by this incidental take statement; if the technical team determines that these projects and their impacts to aquatic habitat are substantially different than described in the TRMFR DEIS and USFWS and BOR (2000), the technical team will recommend to the NMFS that additional ESA section 7 consultation is appropriate;

5.a. The USFWS and Reclamation shall complete the "first phase of the channel rehabilitation projects" (USFWS and BOR 2000) (i.e., '24 channel projects' [TRMFR DEIS]) within 3 years of issuance of the Record of Decision;

6.a. Reclamation shall initiate emergency consultation procedures during implementation of any flood control or "safety of dam" releases, pursuant to 50 CFR §402.05;

7.a. Be prepared to make use of the auxiliary bypass outlets on Trinity Dam as needed, and pursuant to reinitiation of ESA section 7 consultation regarding Sacramento River Winter-run chinook salmon, to protect water quality standards; associated actions may include modification of the export schedule of Trinity Basin diversions to the Sacramento River.

7.b. In years that Reclamation has reinitiated consultation pursuant to criteria established in the Winter-run chinook salmon CVP-OCAP BO, evaluate drawdowns of Trinity Reservoir below the 600 TAF minimum end-of-water year carryover level to the extent needed to avoid significant temperature-related loss of the early life stages of winter-run chinook salmon (> 10% as predicted by Reclamation's Salmon Mortality Model). Implementation of drawdowns below the 600 TAF minimum end-of-year carryover level in Trinity Reservoir shall be determined by Reclamation, USFWS, and NMFS on a case-by-case basis in dry and critically dry water years.

As contained in the Service biological opinion, the following reasonable and prudent measures are necessary and appropriate to minimize the impacts of the Preferred Alternative:

1) Reclamation shall minimize the effects of reoperating the CVP resulting from the implementation of the Preferred Alternative within the Trinity River Basin on listed fish

in the Delta.

In order to be exempt from the prohibitions of section 9 of the Act, Reclamation must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.
To implement Reasonable and prudent Measure number one Reclamation must implement the following:

2) If Reclamation in its annual operations planning process detects that implementation of the Preferred Alternative will result in an upstream (eastward) movement of X2 in any month between February 1 through June 30 of 0.5 km, Reclamation shall incorporate within its operating plan measures that can and will be implemented to minimize or eliminate such upstream movements.

Since there may be some short-term impacts resulting from channel rehabilitation, watershed protection measures, and infrastructure modifications, the Trinity Management Council will guide efforts to minimize or eliminate potential impacts prior to implementation. The FWS will coordinate with the NMFS regarding surveys for threatened coho salmon presence prior to implementation of habitat rehabilitation on the Trinity River. The NMFS and FWS will coordinate work windows for these projects, as needed. Surveys for nesting northern spotted owls and bald eagles will occur in suitable habitat within a 0.5 mile radius of a project site prior to beginning work activities utilizing motorized equipment or chain saws. If a nesting owl is detected within a 0.25 mile radius, scheduled work activities will not occur from February 1 through July 9; if a nesting eagle is detected within a 0.5 mile radius, scheduled work activities will not occur from January 1 through August 31. Similar surveys will occur for watershed protection and restoration efforts in upland areas.

Measures will be taken to minimize any increased sedimentation/turbidity in the mainstem from mechanical disturbance, such as leaving a small berm at the edge of the channel to trap sediments until all other work is completed. Turbidity and other Clean Water Act standards, as identified by the Water Quality Control Plan for the North Coast Region, will be monitored and maintained. If standards are not met, construction activities will cease until such a time that operations or alternatives can be completed within compliance.

Construction of most project sites will involve removal of riparian vegetation at encroached berm areas. Construction of these channel rehabilitation sites, as presented in the FEIS, will include areas that are re-vegetated with willow, cottonwood and/or other shrub/tree species at more appropriate locations on the floodplains of the rehabilitation sites. Ultimately, natural revegetation and more proper riparian function will also occur at project sites as flow regime changes are implemented.

The lead agencies have executed a Programmatic Agreement (PA) under Section 106 of the National Historic Preservation Act with the Hoopa Valley Tribe, the State Historic Preservation Officer for

California, and the Advisory Council on Historic Preservation. Under the terms of the PA, efforts will be undertaken to identify historic properties that may be affected by actions to be taken under the Preferred Alternative, and measures will be identified and implemented to avoid, minimize, or mitigate potential adverse effects upon those properties.

The segment of the Trinity River between Cedar Flat and Lewiston Dam (river miles 47.5 to 111.9) is a component of the National Wild and Scenic Rivers System ("System"). This segment is administered by the National Park Service (NPS) for purposes of review under Section 7 of the Wild and Scenic Rivers Act. The primary outstanding remarkable value of this section of the Trinity River is recreational. Mitigation measures intended to address public safety from river flows that are too high or too low will be implemented as part of the Preferred Alternative. With these measures, the NPS has determined that implementation of the Preferred Alternative would not have a direct and adverse effect on the values for which the river was designated into the System. Within the larger segment administered by the NPS, are segments administered by the US Forest Service (USFS) and the US Bureau of Land Management (BLM). Both agencies determined that implementation of the Preferred Alternative, as proposed, would not result in direct and adverse effects to the river.

All other permits or other authorizations (e.g. Section 404 permits for bridge replacement) will be acquired and other environmental compliance requirements will be satisfied, as necessary, prior to initiation of any actions under the Preferred Alternative.