

U.S. DEPARTMENT OF THE INTERIOR  
BUREAU OF RECLAMATION

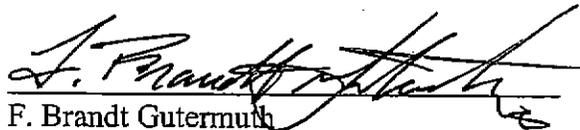
MID-PACIFIC REGION  
NORTHERN CALIFORNIA AREA OFFICE  
TRINITY RIVER RESTORATION PROGRAM  
WEAVERVILLE, CALIFORNIA

FINDING OF NO SIGNIFICANT IMPACT

It is my finding that implementation of the Preferred Alternative does not constitute a major Federal action significantly affecting the quality of the human environment. As such, an Environmental Impact Statement is not required. An Environmental Assessment has been prepared in support of this finding and is available upon request at the Trinity River Restoration Program office identified above.

**Reference: Late-Summer 2003 Preventative Trinity River Flow Releases for Protection of Fall Run Chinook Salmon Environmental Assessment**

Environmental review by:



F. Brandt Gutermuth  
Environmental Specialist, Trinity River Restoration Program

August 21, 2003  
Date

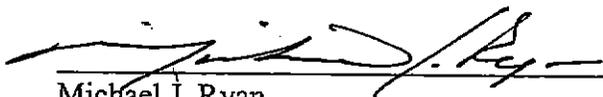
Recommended by:



Douglas P. Schleusner  
Executive Director, Trinity River Restoration Program

8/21/03  
Date

Approved by:



Michael J. Ryan  
Manager, Northern California Area Office

AUGUST 21, 2003  
Date  
FONSI No. TR0203

## FINDING OF NO SIGNIFICANT IMPACT

### LATE-SUMMER 2003 PREVENTATIVE TRINITY RIVER FLOW RELEASES FOR PROTECTION OF FALL RUN CHINOOK SALMON

#### *Lead Agency:*

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#### **BACKGROUND**

In September, 2002, a substantial portion of the returning Trinity River fall run Chinook salmon died during a large-scale die-off in the lower Klamath River. Federal and State biologists studying the die-off concluded that: (1) aquatic pathogens were the primary causes of death to fish; (2) warm water temperatures, low water velocities, high fish density, and long fish residence times likely contributed to the disease outbreak; (3) water temperatures, river stage, and channel geometry probably interacted to stall adult salmon migration; and (4) events of 2002 demonstrate that a major fish die-off can occur during low flow conditions.

In response to this fish die-off, the U.S. Department of the Interior (USDOI) submitted a report to Judge Oliver Wanger, U.S. District Court, on March 18, 2003, entitled *Recommendations for Averting Another Adult Salmonid Die-Off (March 18<sup>th</sup> Plan*; USDOI 2003), to justify additional water allocation to the Trinity River in fall 2003. Subsequently, on April 4, 2003, Judge Wanger issued a court ruling allowing the Bureau of Reclamation (Reclamation) to use an additional 50,000 acre-feet (af) of water from the Trinity River Division of the Central Valley Project "at its reasonable discretion" to prevent a recurrence of the September 2002 fish die-off on the lower Klamath River.

The Trinity River Restoration Program revised the *March 18<sup>th</sup> Plan*, based on additional scientific information from an interdisciplinary team and stakeholder input. The revised plan, entitled *An Action Plan to Minimize Risk of Die-Off of Trinity River Fall Run Chinook Salmon in 2003 (Action Plan, August 6, 2003)* is endorsed by the Trinity Adaptive Management Working Group (TAMWG) and the Trinity Management Council (TMC).

The need for implementing the preferred action is both biological and legal in nature. In 2002, low flow conditions in the lower Klamath River, warm water temperatures, and an above average fall run Chinook salmon escapement combined to create conditions

favorable to an epizootic outbreak resulting in a fish die-off. The biological consequences of a die-off in two consecutive years would substantially impact present efforts to restore the native Trinity River anadromous fish community and fishery. Reductions in the Trinity River fish population can affect Tribal fishery harvest opportunities, ocean harvest levels, recreational fishing, as well as public perception and recovery mandates. Last year's loss of 3 year-old and a potential loss of 4 year-old fish from the 1999 brood year affect the population structure, and may impede recovery goals authorized by the Trinity River Division Central Valley Project Act of 1955 (P.L. 84-386), the Trinity River Basin Fish and Wildlife Act of 1984 (P.L. 98-541), and the Central Valley Project Improvement Act of 1992 (P.L. 102-575), for naturally produced fall run Chinook salmon.

## **ALTERNATIVES**

### **Alternative 1 - No Action Alternative**

Under this alternative, releases from Lewiston Dam would remain at 450 cubic feet per second (cfs) summer base flow conditions. Summer base flows generally occur between June and early October. In odd numbered years, Reclamation increases Lewiston Dam releases above 450 cfs to provide water for the Hoopa Valley Tribe's White Deerskin Boat Dance Ceremony (Ceremony). This year, the Ceremony will require Lewiston Dam releases to be ramped up from 450 cfs on August 24, flows will peak at 1,650 cfs on August 25. Without implementation, of either Alternative 2 or 3, flows would be ramped down to 450 on August 26.

### **Alternative 2 - Hybrid Pulsed/Sustained Flow**

This alternative (with 2 options) was proposed in the March 18<sup>th</sup> Plan and recommends implementing a minimum of two 2,000 cfs pulse flow releases from Lewiston Dam. Flows for each pulse would be increased from 450 to 2,000 cfs over a 24 hour period, held at 2,000 cfs for two days, and ramped down to 450 cfs over a 24 hour period. The first two pulses would occur between August 17 and 29. In the first option, 3 additional pulse flows of 2,000 cfs would follow and occur in September. Combined, the 5 pulse flows would require 34,805 af of water over baseflow volume. Biologists would conduct real-time monitoring to assess how successful these pulses were at dispersing fish and initiating upstream migration.

If the first two pulse flows were shown to be ineffective at dispersing fish and initiating adult migration, biologists would then initiate the second option. The second option recommends a sustained release of 1,500 cfs, between September 1 and September 17. This option would require 59,096 af over baseflow volume.

### **Alternative 3 - Action Plan Flows (Preferred)**

The preventive flow release would be implemented on August 27, immediately following peak flow releases for the Ceremony. After the Ceremony peak flow of 1,650 cfs, a

gradual ramp down would begin, reaching 1,000 cfs on September 15. A return to the summer base flow of 450 cfs would be completed on September 17. A total of 33,000 af of water would be used for this alternative. If triggered, the emergency flow release would involve a 5-day release of 2,000 cfs from Lewiston Dam for an estimated total volume of 17,000 af above baseflow volume. Combined, the preventive and emergency flow response would not exceed the 50,000 af allocation dictated by the court ruling.

The *Action Plan* contains triggers for separately initiating the preventive and emergency response flow releases. Triggers for initiating the preventive flow release have been met as of August 20, 2003, including: (1) a fall run Chinook salmon population size estimate of greater than 110,000 for the Klamath Basin, and (2) a flow of less than 3,000 cfs in the lower Klamath River. The triggers for initiating the emergency response flow release would be an estimated doubling in less than 7 days of either the incidence (proportion of fish infected) or severity (number of parasites per gill) of Ich. Evaluation of these triggers would be based on real-time monitoring of disease incidence to be conducted in the lower Klamath River in the geographic locations of the die-off that occurred in 2002.

### **Alternatives Considered But Eliminated from Further Consideration**

Two alternatives from the March 18<sup>th</sup> plan were also considered but eliminated for the following reasons:

#### ***Sustained Flow***

This alternative would increase flows from 450 cfs on August 14, flows would be held at 1,500 cfs from August 15 through September 15, and ramp down to 450 cfs on September 18. This flow scenario would use 69,200 af of water over base flow conditions and have the largest effect on lowering the temperature of Klamath River water. However, this alternative was eliminated because the volume of water exceeded that made available for this action in the Court's ruling, and because the Sustained Flow water release would represent an unnaturally high and consistent baseflow for the late-summer season.

#### ***Pulsed Flow***

This alternative recommends use of four pulse flows occurring between August 17 and September 12. The first two pulses would ramp up rapidly from 450 cfs to 2,000 cfs, flows held at 2,000 cfs for two days, and ramp down to 450 cfs. The second two pulse flows would be identical to the first except that peak flows of 2,000 cfs would only be held for one day. This flow scenario would use 39,000 af of water over base flow conditions. This alternative was eliminated because biologists believed that short duration pulses would not be adequate to sustain upstream adult migration or reinitiate movement if fish stopped migration and began stacking up within holding habitats. Public safety concerns associated with pulse flows also contributed to elimination of this alternative.

## **FINDINGS**

In accordance with the National Environmental Policy Act of 1969, as amended, Reclamation has found that an Environmental Impact Statement is not required for Reclamation to implement the Preferred Alternative of increasing Trinity River flows to reduce the likelihood, and potentially reduce the severity, of a fish die-off occurring in 2003.

As determined in the attached Environmental Assessment, Reclamation did not identify any significant impacts which will result from the preferred action. The Preferred Alternative is identified as the superior biological alternative providing in-river conditions most likely to reduce the probability, and potentially reduce the severity, of a fish die-off occurring in 2003.

Implementation of Alternative 3, the Action Plan Flows, is the Preferred Alternative. Reclamation's finding of no significant impacts is based upon the following interpretation of Preferred Alternative Impacts:

### **Fisheries**

- Minimizes the risk of dewatering spring run Chinook salmon redds in the Upper Trinity River;
- Reduces potential pre-spawn adult crowding by supplying conditions known to provide unimpaired upstream passage and increasing wetted in-river habitat; and
- Decreases adult fish densities reducing the ability of water borne pathogens to spread.

The Preferred Alternative would be implemented later, during the peak abundance of Trinity River hatchery fall run Chinook salmon entering the estuary. It is at this time when fish are at their highest in-river densities and therefore at greatest risk of physiological stress, and highest potential incidence of disease transmittal and outbreak. Providing flow during peak estuary abundance would initiate upstream adult migration and decrease in-river fish densities at the most critical time. The Preferred Alternative provides in-river conditions which are known to provide unimpaired upstream passage for adult fall run Chinook rather than just providing short-term migration cues. The consistent and decreasing flows in the Preferred Action would also minimize fish counting weir disturbances compared to the multiple peaks called for in Alternative 2.

If required, the Preferred Alternative reserves approximately 17,000 af of water for an emergency response, to increase water volume turn-over to break the disease cycle, if this is required beyond the preventative flow recommendations.

### **Threatened, Endangered, and Sensitive Species**

The Preferred Alternative has been reviewed by National Oceanic and Atmospheric Administration (NOAA), Fisheries for potential affects to threatened SONCC coho

salmon, their critical habitat, and Essential Fish Habitat for fish species federally managed under Pacific Salmon Fishery Management Plans (coho and Chinook salmon). This federal agency concurred that implementation of the Preferred Alternative would not be likely to adversely affect threatened SONCC coho salmon, or designated SONCC coho salmon critical habitat. The Preferred Alternative might increase the success of rearing coho salmon by inundating additional habitat, thereby providing increased feeding opportunities and decreasing the possibility of density-dependent adverse impacts.

Preferred Alternative releases to the Trinity River of up to 50,000 af, as authorized by Judge Wanger, would have no impact to Central Valley Project (CVP) operations and water supply deliveries in 2003. Consequently, this action would have no effect on federally listed fishes within the Central Valley. Reclamation has negotiated an exchange agreement with the Metropolitan Water District (MWD) of Los Angeles such that Trinity Reservoir water used for the action will be exchanged for non-CVP water stored within Shasta Lake. This ensures normally scheduled CVP deliveries this year. Reduction in Trinity Reservoir CVP storage could potentially have a minor impact to future water supplies; however, current high carryover storage levels in northern CVP reservoirs indicate that winter 2003/2004 runoff will probably fill northern CVP reservoirs to their flood control limitations.

### **Hydrology**

- Increases flows in the lower Klamath River above levels observed during the 2002 fish die-off; and
- Adheres to ramping rates from Lewiston dam that comply with criteria established in the EIS/EIR.

The Preferred Alternative employs the most water conservative approach to addressing adverse in-river conditions in the lower Klamath River. The preventative release would utilize a total of 33,000 af of water over the baseflow volume. This would leave approximately 17,000 af of water available to initiate the emergency response flow.

The Preferred Alternative would minimize erratic impacts to Trinity River flows and would occur late enough in the summer (after Labor Day) so that economic impacts to flat water recreation would be minimized. Though late-summer storms that cause such flow increases as those proposed are rare, the hydrograph for this alternative lies within the natural range of the historic unimpaired hydrology for the Trinity River system.

### **Socioeconomic**

The Preferred Alternative would not effect the forecasted diversions from the Trinity River basin to the Sacramento River basin. Diversions would fluctuate as weather conditions dictate, but releases in excess of powerplant capacity would not be expected to occur at Trinity, J.F. Carr, and Spring Creek Powerplants. An additional release volume

from Trinity Powerplant would be needed in order to support the corresponding flow increase to the Trinity River below Lewiston Dam.

The Preferred Alternative would substantially decrease the potential for a fish die-off. Consequently, no impacts to the fishing industry would occur.

### **Water Quality**

Temperature models indicate that the Preferred Alternative would reduce water temperatures as far downstream as the lower Klamath River. Decreases in water temperatures would vary according to ambient air temperatures, but on average the lower Klamath River could experience a decrease in water temperature of about 1 degree centigrade.

### **Recreation and Public Safety**

Current storage in Trinity Reservoir is approximately 2.2 maf, which is 92% of capacity and 125% of the 15-year average for this time of year. The most recent operations forecast, which includes Lewiston Dam releases to the Trinity River of 450 cfs, projects Trinity Reservoir storage to fall to 1.9 maf (elevation 2334 ft) by the end of September, which is 127% of the 15-year average for the end of a water year. An additional 33,000 af release would reduce the Trinity Reservoir storage by two feet (elevation 2,332 ft) by the end of September, whereas an additional 50,000 release would reduce the Trinity Reservoir storage by three feet (elevation 2,331 ft) by the end of September.

These reductions in water level would reduce the total surface area available for boating and other recreational surface activities. However, the decrease in usable surface area would unlikely be noticed by the average user and lake level would still be higher than last year. This lowering in the reservoir level is not likely to degrade aesthetic values associated with recreational use. In addition, most water used by these alternatives would be released after Labor Day, the last major weekend of the summer season, and would minimize both recreational and economic impacts.

Increased flows from the Preferred Alternative would likely have minor short-term negative impacts to Tribal fishery activities and river dredge activities. These impacts are expected to be minimized due to the gradual ramp down of flows. This gradual ramp down would also be less disruptive to angling activities compared to repeated pulse flows. What is more, white water boating activities, which are a major use of the river this time of year, would benefit more from the Preferred Alternative than either of the other alternatives.

### **Cultural Resources**

Implementation of Alternatives 1, 2 or 3 would have no impacts on cultural resources (historic properties) within the project area, which includes the shoreline of Trinity Reservoir and banks of the Trinity River.

### **Indian Trust Assets**

The Preferred Alternative would likely benefit Trinity River fishes and would have no negative impacts on other Indian Trust Assets (e.g., willow shoots, blackberries, bears, waterfowl, etc.).

### **CONCLUSION**

Based on analyses presented in the attached EA, and the ability to meet the Purpose and Need, Alternative 3 was chosen as the Preferred Alternative. Determination was made based on beneficial impacts to populations of anadromous fish, as well as negligible impacts to other associated natural resources.

# **ENVIRONMENTAL ASSESSMENT**

## **Late-Summer 2003 Preventative Trinity River Flow Releases for Protection of Fall Run Chinook Salmon**

**FINAL**

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Trinity River Restoration Program  
P.O. Box 1300  
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August 20, 2003

## SUMMARY

In September, 2002, a substantial portion of the returning Trinity River fall run Chinook salmon died during a large-scale die-off in the lower Klamath River. Federal and State biologists studying the die-off concluded that: (1) pathogens *Ichthyophthirius multifiliis* (Ich) and *Flavobacterium columnare* (Columnaris) were the primary causes of death to fish; (2) warm water temperatures, low water velocities, high fish density, and long fish residence times likely contributed to the outbreak of the Ich epidemic; (3) water temperatures, river stage, and channel geometry probably interacted to stall adult salmon migration; and (4) events of 2002 demonstrate that a major fish die-off can occur during low flow conditions.

In response to this fish die-off, the U.S. Department of the Interior (USDOI) submitted a report to Judge Oliver Wanger, U.S. District Court, on March 18, 2003, entitled *Recommendations for Averting Another Adult Salmonid Die-Off (March 18<sup>th</sup> Plan; USDOI 2003)*, to justify additional water allocation to the Trinity River in fall 2003. Subsequently, on April 4, 2003, Judge Wanger issued a court ruling allowing the Bureau of Reclamation (Reclamation) to use an additional 50,000 acre-feet (af) of water from the Trinity River Division of the Central Valley Project "at its reasonable discretion" to prevent a recurrence of the September 2002 fish die-off on the lower Klamath River (U.S. District Court 2003b).

The Trinity River Restoration Program (TRRP) facilitated an update to the March 18<sup>th</sup> plan that included additional scientific information and stakeholder input, during July 2003. In particular, the March 18<sup>th</sup> plan was revised to include: (1) a new proposed alternative and final decision criteria for evaluating environmental triggers that would initiate Judge Wanger's ruling, (2) a daily flow schedule, (3) and a monitoring/evaluation plan. The revised report, entitled *An Action Plan to Minimize Risk of Die-Off of Trinity River Fall Run Chinook Salmon in 2003 (Action Plan, August 6, 2003; TRRP 2003b)*, was unanimously endorsed by the TRRP's supporting stakeholder group, the Trinity Adaptive Management Working Group (TAMWG<sup>1</sup>). On July 30, 2003, the TRRP's governing body, the Trinity Management Council (TMC) voted 7 to 1 in favor of the August 6 *Action Plan*, and on August 8, 2003, Reclamation transmitted the *Action Plan* to Secretary of the Interior Gale Norton with a recommendation that it be implemented if its "trigger" requirements were met.

The *Action Plan* uses a conservative risk management approach to avert another fish die-off in 2003, and recognizes that the biological consequences of another die-off could have severe long-term implications for recovery of fall run Chinook salmon populations in the Trinity River. The *Action Plan* contains two flow components. The first

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<sup>1</sup> The Trinity Adaptive Management Working Group (TAMWG) was specifically established to give stakeholders a formal avenue of participation in the Trinity River Restoration Program. The Secretary of the Interior announced the appointment of the 19-member group on November 14, 2002. Members represent a broad range of public interests including: Trinity Lake marinas, small businesses in the Trinity River basin, Central Valley water users, sport fishing groups, long term local residents, scientific interests, river outfitters and guides, forest land owners and managers, whitewater rafters/kayakers, electrical power users, watershed restoration and conservation groups, gold dredgers, and commercial ocean fishing operations.

component is a preventative flow release, using 33,000 acre-ft (af) of water. The preventative flow is intended to reduce the likelihood of a large scale fish die-off by ensuring adequate conditions for adult upstream migration through the lower Klamath River. The second component is an emergency response flow release, using an additional 17,000 af of water. This flow would be implemented to decrease the severity of a fish die-off if real-time monitoring indicates a rapid spread of the incidence of the disease Ich.

The *Action Plan* contains triggers for separately initiating the preventive and emergency response flow releases. Triggers for initiating the preventive flow release have been met as of August 20, 2003, including: (1) a fall run Chinook salmon population size estimate of greater than 110,000 for the Klamath Basin, and (2) a flow of less than 3,000 cfs in the lower Klamath River. The triggers for initiating the emergency response flow release would be an estimated doubling in less than 7 days of either the incidence (proportion of fish infected) or severity (number of parasites per gill) of Ich. Evaluation of these triggers would be based on real-time monitoring of disease incidence to be conducted in the lower Klamath River in the geographic locations of the die-off that occurred in 2002.

## PROJECT SETTING

Implementation of the proposed action is limited to late summer 2003 flow releases from Trinity Dam, however, the affected environment occurs between Lewiston Dam and the Klamath River estuary near Klamath, California.

## PURPOSE AND NEED

The purpose of implementing the proposed action is to increase Trinity River flows to reduce the likelihood, and potentially reduce the severity, of a fish die-off occurring in 2003, by providing flows known to be adequate for unimpaired salmon migration through the lower Klamath River. The proposed action of increasing flows should reduce or eliminate adverse in-river conditions that contributed to the fish die-off in 2002, as discussed in the Summary. The draft report entitled, "*September 2002 Klamath River Fish Kill: Preliminary Analysis of Contributing Factors*" (California Department of Fish and Game (CDFG), January 2003) identified crowded holding conditions for pre-spawn adults, warm water temperatures, and presence of disease pathogens (i.e., Ich and Columnaris) as the likely major factors which caused a disease epidemic and resulted in the die-off. It is surmised that the large run size coupled with low flow conditions increased fish densities locally in places of thermal refuge and below riffles.

The need for implementing the proposed action is both biological and legal in nature. In 2002, low flow conditions in the lower Klamath River, warm water temperatures, and an above average fall run Chinook salmon escapement combined to create conditions favorable to an epizootic outbreak resulting in a fish die-off. The biological consequences of a die-off in two consecutive years would substantially impact present efforts to restore the native Trinity River anadromous fish community and fishery. Reductions in the Trinity River fish population can affect Tribal fishery harvest opportunities, ocean harvest levels, recreational fishing, as well as public perception and recovery mandates. Last year's loss of 3 year-old and a potential loss of 4 year-old fish from the 1999 brood year affect the population structure, and may impede recovery goals

authorized by the Trinity River Division Central Valley Project Act of 1955 (P.L. 84-386), the Trinity River Basin Fish and Wildlife Act of 1984 (P.L. 98-541), and the Central Valley Project Improvement Act of 1992 (P.L. 102-575), for naturally produced fall run Chinook salmon.

In a March 5, 2003 court hearing, Judge Oliver Wanger directed the Department of the Interior to determine what actions would be necessary to "assure against the risk of fish losses that occurred late in the season last year" (U.S. District Court 2003a). Judge Wanger subsequently issued a ruling on April 4, 2003 allowing Reclamation to use an additional 50,000 af from the Trinity River Division of the Central Valley Project "at its reasonable discretion" to prevent a recurrence of the September 2002 fish die-off (U.S. District Court 2003b).

Projected flow conditions and a large fall run Chinook salmon escapement on the lower Klamath River in 2003 are very similar to conditions that existed during the die-off in 2002. The two triggers established for initiating the preventive flow release (low flow and a large return of fall run Chinook salmon) have already been met as of August 20, 2003. Therefore, Reclamation is considering implementing the proposed action as a preventative means to reduce the likelihood of another fish die-off in 2003.

## **PUBLIC INVOLVEMENT AND STAKEHOLDER PARTICIPATION**

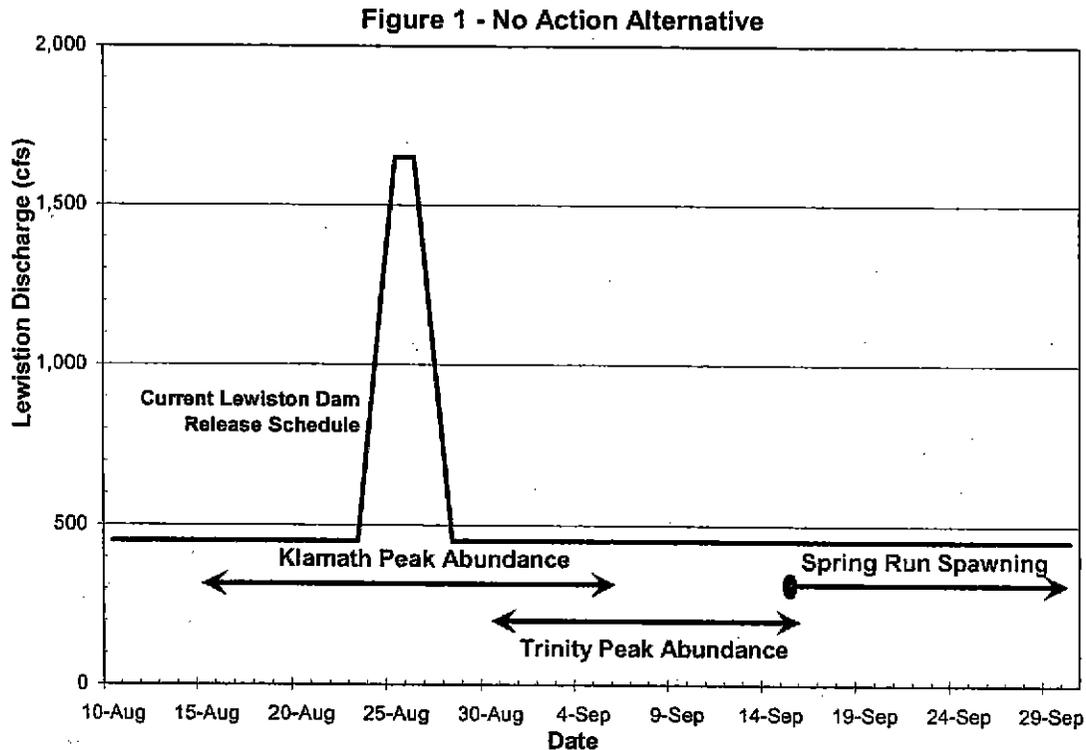
An initial presentation of increased late-summer Trinity River flows options and request for written comments was given at the TMC meeting on June 26, 2003 (June 26, 2003 memorandum; TRRP 2003a). Written comments were received through July 18, 2003, (Appendix A, Response to Comments Received). A technical workgroup of state, federal, and tribal biologists was convened on July 23 and 24, 2003, to consider comments received and evaluate the alternatives. That group developed a revised alternative, the Action Plan Flows option that addresses these concerns. Additional updates were provided to a broadly representative group of stakeholders (see footnote 1, page 2) on July 29, 2003, at a TAMWG meeting in Weaverville, California (U.S. Fish and Wildlife Service (USFWS) 2003), and a TMC conference call on July 30, 2003. A letter of support for the proposed action was forwarded directly to the Secretary of the Interior from the TMC and TAMWG in a letter dated August 8, 2003.

## **ALTERNATIVES**

### **Alternative 1 - No Action Alternative**

Under this alternative, releases from Lewiston Dam would remain at 450 cfs summer base flow conditions as described in the Trinity River Mainstem Fishery Restoration Environmental Impact Statement/Environmental Impact Report (EIS/EIR). Summer base flows generally occur between June and early October. In odd numbered years, Reclamation increases Lewiston Dam releases above 450 cfs to provide water for the Hoopa Valley Tribe's White Deerskin Boat Dance Ceremony (Ceremony). This year, the Ceremony will require Lewiston Dam releases to be ramped up from 450 cfs on August 24 to a peak of 1,650 cfs on August 25. Without implementation, of either alternative 2

or 3, flows would be ramped down to 450 cfs on August 26. Figure 1 displays the hydrograph for the 2003 No Action Alternative.

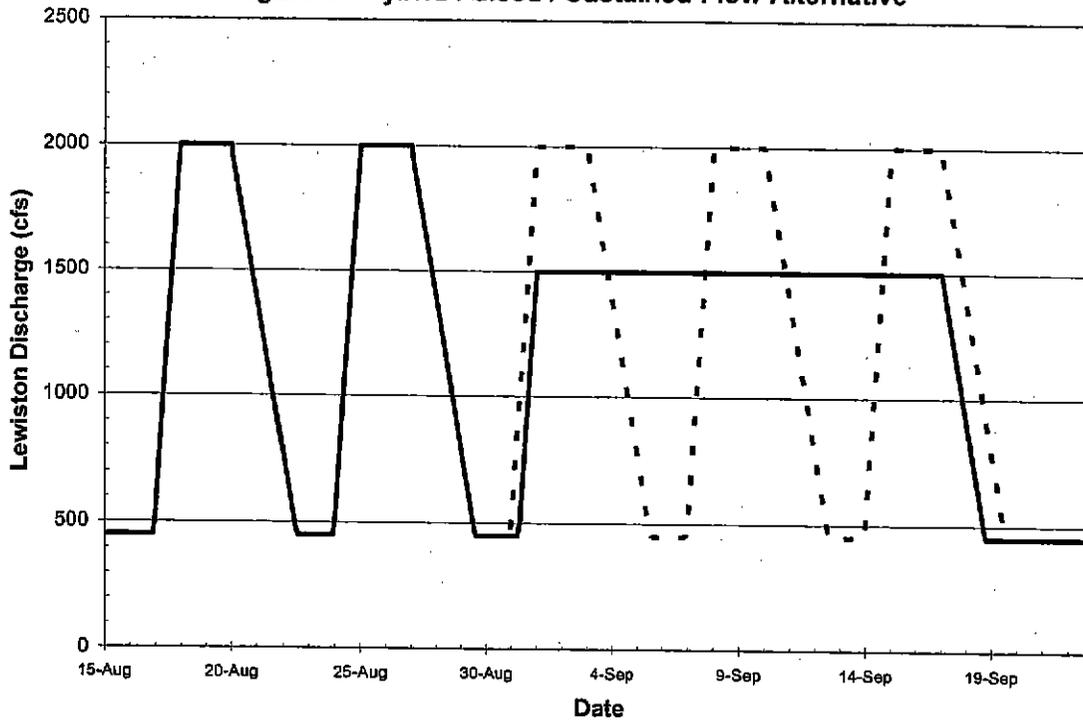


### Alternative 2 - Hybrid Pulsed/Sustained Flow

This alternative (with 2 options) was proposed in the March 18<sup>th</sup> Plan and recommends implementing a minimum of two 2,000 cfs pulse flow releases from Lewiston Dam. Figure 2 displays the hydrograph for the Hybrid Pulsed/Sustained Flow Alternative. Flows for each pulse would be increased from 450 to 2,000 cfs over a 24 hour period, held at 2,000 cfs for two days, and ramped down to 450 cfs over a 24 hour period. The first two pulses would occur between August 17 and 29. In the first option, 3 additional pulse flows of 2,000 cfs would follow and occur in September. Combined, the 5 pulse flows would require 34,805 af of water over baseflow volume. Biologists would conduct real-time monitoring to assess how successful these pulses were at dispersing fish and initiating upstream migration.

If the first two pulse flows were shown to be ineffective at dispersing fish and initiating adult migration, biologists would then initiate the second option. The second option recommends a sustained release of 1,500 cfs, between September 1 and September 17. This option would require 59,096 af over baseflow volume.

Figure 2 - Hybrid Pulsed / Sustained Flow Alternative

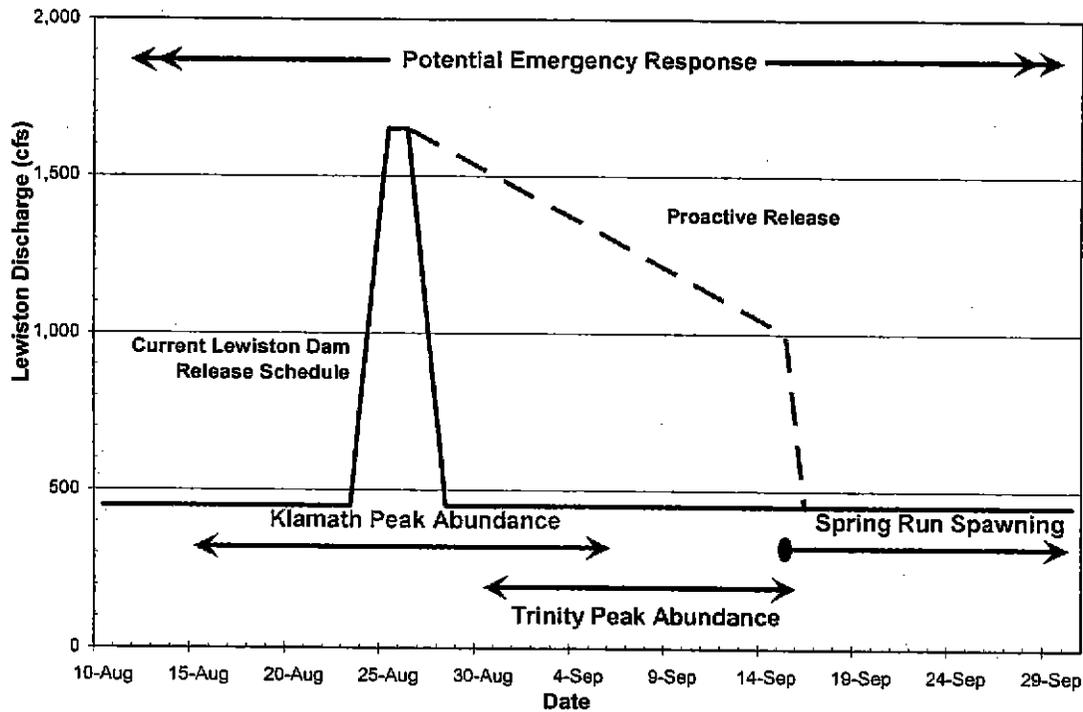


### Alternative 3 – Action Plan Flows (Proposed)

This proposed alternative contains both the preventative and emergency flow release components of the *Action Plan*. The hydrograph for the Action Plan Flows Alternative is displayed in Figure 3. The preventative flow release would be implemented on August 27, immediately following peak flow releases for the Ceremony. After the Ceremony peak flow of 1,650 cfs, a gradual ramp down would begin, reaching 1,000 cfs on September 15. A return to the summer base flow of 450 cfs would be completed on September 17. A total of 33,000 af of water would be used for this alternative. If triggered, the emergency flow release would involve a 5-day release of 2,000 cfs from Lewiston Dam for an estimated total volume of 17,000 af above baseflow volume. Combined, the preventative and emergency flow response would not exceed 50,000 af over the baseflow volume.

The *Action Plan* contains triggers for separately initiating the preventative and emergency response flow releases. Triggers for initiating the preventative flow release have been met as of August 20, 2003, including: (1) a fall run Chinook salmon population size estimate of greater than 110,000 for the Klamath Basin, and (2) a flow of less than 3,000 cfs in the lower Klamath River. The triggers for initiating the emergency response flow release would be an estimated doubling in less than 7 days of either the incidence (proportion of fish infected) or severity (number of parasites per gill) of Ich. Evaluation of these triggers would be based on real-time monitoring of disease incidence to be conducted in the lower Klamath River in the geographic locations of the die-off that occurred in 2002.

Figure 3 - Preferred Alternative (Action Plan Flows)



### Alternatives Considered But Eliminated from Further Consideration

Two alternatives from the March 18<sup>th</sup> plan were also considered but eliminated for the following reasons:

#### *Sustained Flow*

This alternative would increase flows from 450 cfs on August 14. Flows would be held at 1,500 cfs from August 15 through September 15, and would then ramp down to 450 cfs on September 18. This flow scenario would use 69,200 af of water over base flow conditions and have the largest effect on lowering the temperature of Klamath River water. However, this alternative was eliminated because it was not conservative in its use of water and because the Sustained Flow water release would represent an unnaturally high and consistent baseflow for the late-summer season.

#### *Pulsed Flow*

This alternative recommends use of four pulse flows occurring between August 17 and September 12. The first two pulses would ramp up rapidly from 450 cfs to 2,000 cfs, flows would be held at 2,000 cfs for two days, and would then ramp down to 450 cfs. The second two pulse flows would be identical to the first except that peak flows of 2,000 cfs would only be held for one day. This flow scenario would use 39,000 af of water over base flow conditions. This alternative was eliminated because biologists believed that short duration pulses would not meet the need to adequately sustain upstream adult migration or reinitiate movement if fish stopped migration and began concentrating

within holding habitats. Public safety concerns associated with pulse flows also contributed to elimination of this alternative.

### **AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

Reclamation has determined that Alternatives 1, 2, or 3 would have no impacts in the following resource areas: Jurisdictional waters (e.g., wetlands), riparian vegetation and floodplains, hazardous materials, air quality, the Wild and Scenic River Corridor, wildlife, and noise. Below is a summary (Table 1) of the primary impacts and benefits for all three alternatives; a more detailed analysis follows.

<b>Table 1. – Summary of primary impacts and benefits for all alternatives.</b>			
<b>Resources Impacted/ Benefited</b>	<b>Alternative 1 No Action</b>	<b>Alternative 2 Hybrid Pulsed/Sustained Flow</b>	<b>Alternative 3 Action Plan Flows (Proposed)</b>
Fisheries	Short & long-term potential negative impacts to Trinity River salmonids. No Impact to Central Valley species.	Short & long-term potential benefit to Trinity River salmonids.  Increased potential for straying  No Impact to Central Valley species.  Short-term impacts to operation of fish counting and marking weirs.	Short & long-term potential benefit to Trinity River salmonids. No Impact to Central Valley species.  Maintains better in-river conditions.  Minimal short-term impacts to operation of fish counting and marking weirs.
Threatened, Endangered, and Sensitive Species	Potential negative impacts to Trinity River salmonids of concern.  No impact to Central Valley listed species of concern.	Short & long-term potential benefit to Trinity River salmonids.  No Impact to Central Valley listed species of concern.	Short & long-term potential benefit to Trinity River salmonids.  Potential benefits to amphibians of concern.  No Impact to Central Valley species
Hydrology	No impacts	Short-term erratic changes to current flow schedule  Increased water use	Short-term mimic of storm hydrograph.  Efficient use of water.
Socioeconomic	Increased potential impact to current and future fishing opportunities.  No impacts to CVP interests	No short-term impacts to power production or water deliveries  Potential benefits to present and future fishing opportunities.  Long-term minimal impacts to CVP interests	No short-term no impacts to power production or water deliveries  Potential benefits to present and future fishing opportunities.  Long-term minimal impacts to CVP interests
Water Quality	No impacts	Short-term “relatively ephemeral” beneficial impacts from lower water temperatures.	Short-term “relatively longer” beneficial impacts from lower water temperatures.

**Table 1. – Summary of primary impacts and benefits for all alternatives.**

<b>Resources Impacted/ Benefited</b>	<b>Alternative 1 No Action</b>	<b>Alternative 2 Hybrid Pulsed/Sustained Flow</b>	<b>Alternative 3 Action Plan Flows (Proposed)</b>
Recreation and Public Safety	No impact	Short-term erratic benefits to white water boating.  Short-term negative impacts to anglers, Tribal fisheries, and river dredging; some increased concern for public safety.	Relatively longer benefits to white water boating  Short-term negative impacts to Tribal fisheries and river dredging; no impact to public safety.
Cultural Resources	No impact	No impact	No impact
Indian Trust Assets	Potential negative impacts aquatic and anadromous trust resources.  No Impact to Central Valley Trust Assets.	Short & long-term potential benefit to Trinity River Trust Assets.  No Impact to Central Valley Trust Assets.	Short & long-term potential benefit to Trinity River salmonids.  No Impact to Central Valley Trust Assets.

## **Fisheries**

### ***Alternative 1 - No Action Alternative***

The No Action alternative would do nothing to proactively minimize the likelihood of a fish die-off in 2003. Currently, the lower Klamath River has generally similar conditions to those attributed to causing last year's die-off. A combination of relatively low instream flow and large escapement of fall run Chinook salmon increases the likelihood of adverse in-river conditions (e.g., warm water temperatures and high fish densities) that could result in increased disease outbreak. Under this alternative, there is no predetermined contingency to reduce the severity of a die-off if one were to occur.

Alternative 1 would minimize the risk of dewatering spring run Chinook salmon redds in the Upper Trinity River.

### ***Alternative 2 - Hybrid Pulsed/Sustained Flow***

This alternative would have beneficial impacts on in-river conditions that would decrease the likelihood of a fish die-off. Increased flows would lower water temperatures and would provide upstream migratory cues for adult pre-spawn salmon to reduce fish densities. Through a combination of these benefits, a reduction in disease rates and transmittal should be achieved.

Alternative 2:

- Minimizes the risk of dewatering spring run Chinook salmon redds in the Upper Trinity River;
- Reduces potential pre-spawn adult crowding by initiating migration and increasing short-term wetted in-river habitat; and
- Decreases adult fish densities reducing the ability of water borne pathogens to spread.

Alternative 2, however, with its earlier timing and multiple peaks in flow, would be more likely to confuse migratory fish responses and to result in straying. In addition, multiple peaks in flow would be more detrimental to fish monitoring at the Junction City weir than Alternative 3's proposed flow schedule.

***Alternative 3 - Action Plan Flows (Proposed)***

Alternative 3:

- Minimizes the risk of dewatering spring run Chinook salmon redds in the Upper Trinity River;
- Reduces potential pre-spawn adult crowding by supplying conditions known to provide unimpaired upstream passage and increasing wetted in-river habitat; and
- Decreases adult fish densities reducing the ability of water borne pathogens to spread.

Alternative 3 would be implemented later, during the peak abundance of Trinity River hatchery fall run Chinook salmon entering the estuary (Figure 3). It is at this time when fish are at their highest in-river densities and therefore at greatest risk of physiological stress, and highest potential incidence of disease transmittal and outbreak. Providing flow during peak estuary abundance would initiate upstream adult migration and decrease in-river fish densities at the most critical time. The Proposed Action provides in-river conditions which are known to provide unimpaired upstream passage for adult fall run Chinook rather than just providing short-term migration cues. The consistent and decreasing flows proposed in Alternative 3 would also minimize fish counting weir disturbances compared to the multiple peaks called for in Alternative 2.

Finally, if required, the Proposed Action reserves approximately 17,000 af of water for an emergency response, to increase water volume turn-over to break the disease cycle, if this is required beyond the preventative flow recommendations.

**Threatened, Endangered, and Sensitive Species**

***Alternative 1 - No Action Alternative***

The No Action alternative would do nothing to proactively minimize the likelihood of a fish die-off in 2003. This could increase the potential for negative impacts to threatened Southern Oregon/Northern California Coast (SONCC) coho salmon, other salmonids (e.g., the Klamath Mountain Province summer-run steelhead which is listed by CDFG as a Species of Special Concern (SSC) and by the U.S. Forest Service (USFS) as a Sensitive

Species (SS), and the Klamath-Trinity population of spring-run Chinook salmon (CDFG: SSC and USFS: SS)), and native fish species (e.g., the Klamath River Lamprey (CDFG: SSC) of concern.

Currently, the lower Klamath River has generally similar conditions to those attributed to causing last year's die-off. A combination of relatively low instream flow and large escapement of fall run Chinook salmon increases the likelihood of adverse in-river conditions (e.g., warm water temperatures and high fish density) that would result in increased disease outbreak.

In the event of another fish die-off, short-term positive impacts to several raptor species of concern (e.g., bald eagle and osprey both CDFG:SSC) would be expected as dead fish would be abundantly available for food.

### *Alternative 2 - Hybrid Pulsed/Sustained Flow*

In addition to general benefits that might occur for all fish species (Fisheries Section), additional inundated riverine habitat might augment short-term availability of food resources for rearing SONCC coho salmon. However, the relatively early timing of Alternative 2 could potentially cue Klamath River Chinook salmon stocks, which generally return earlier than Trinity River fish (Figure 3), to stray into the Trinity River and to spawn earlier.

Impacts to avian, wildlife, and riparian resources would more likely result from Alternative 2 due to unnaturally fluctuating river levels. For example, foothill yellow-legged frog tadpoles (CDFG: SSC and USFS: SS) could be washed from their holding areas with early releases before they have emerged as adult frogs.

Alternative 2 increased releases to the Trinity River of up to 50,000 af, as authorized by Judge Wanger, would have no impact to Central Valley Project (CVP) operations and water supply deliveries in 2003. Consequently, this action would have no effect on federally listed fishes within the Central Valley. Reclamation has negotiated an exchange agreement with the Metropolitan Water District (MWD) of Los Angeles such that Trinity Reservoir water used for the action will be exchanged for non-CVP water stored within Shasta Lake. This ensures normally scheduled CVP deliveries this year. Reduction in Trinity Reservoir CVP storage could potentially have a minor impact to future water supplies; however, current high carryover storage levels in northern CVP reservoirs indicate that winter 2003/2004 runoff will probably fill northern CVP reservoirs to their flood control limitations.

### *Alternative 3 - Action Plan Flows (Proposed)*

In addition to general benefits that might occur for all fish species (Fisheries Section), Alternative 3 has been reviewed by National Oceanic and Atmospheric Administration (NOAA), Fisheries for potential affects to threatened SONCC coho salmon, their critical habitat, and Essential Fish Habitat for fish species federally managed under Pacific Salmon Fishery Management Plans (coho and Chinook salmon). This federal agency concurred that implementation of the Proposed Action would not be likely to adversely

affect threatened SONCC coho salmon, or designated SONCC coho salmon critical habitat. The Proposed Action might increase the success of rearing coho salmon by inundating additional habitat, thereby providing increased feeding opportunities and decreasing the possibility of density-dependent adverse impacts.

Impacts to avian, wildlife, and riparian resources would be negligible due to the gradual ramp down from 1,650 cfs to 1,000 cfs between August 26 and September 15 and the rapid return to summer base flows of 450 cfs by September 17. Foothill yellow-legged frog tadpoles (CDFG: SSC and USFS: SS) would likely benefit by holding off until late August to allow final stages of metamorphosis of tadpoles and by addition of supplementary water into pools that are currently drying up; although some tadpoles might be washed away. Current egg mass mortality is approximately 20 percent to date.

Proposed Action releases to the Trinity River of up to 50,000 af, as authorized by Judge Wanger, would have no impact to Central Valley Project (CVP) operations and water supply deliveries in 2003. Consequently, this action would have no effect on federally listed fishes within the Central Valley. Reclamation has negotiated an exchange agreement with the Metropolitan Water District (MWD) of Los Angeles such that Trinity Reservoir water used for the action will be exchanged for non-CVP water stored within Shasta Lake. This ensures normally scheduled CVP deliveries this year. Reduction in Trinity Reservoir CVP storage could potentially have a minor impact to future water supplies; however, current high carryover storage levels in northern CVP reservoirs indicate that winter 2003/2004 runoff will probably fill northern CVP reservoirs to their flood control limitations.

## Hydrology

### *Alternative 1 - No Action Alternative*

No impacts to current flow schedule.

### *Alternative 2 - Hybrid Pulsed/Sustained Flow*

This alternative is more water conservative than an increased baseflow/sustained flow option of similar magnitude. For example, if the first two pulse flows are successful in their effectiveness to reduce adverse in-river conditions and initiate upstream adult salmon migration, then the pulse flows will continue and only 34,805 af of water would be used over baseflow volume. The drawback is that if the first two pulse flows are not successful, then the sustained release is implemented, which requires 59,096 af of water above base flow volume. In this event, there could be insufficient water available to implement any emergency response flow release.

#### Alternative 2:

- Increases flows in the lower Klamath River above levels observed during the 2002 fish die-off; and
- Adheres to ramping rates from Lewiston dam that comply with criteria established in the EIS/EIR.

Alternative 2, however, would implement an erratic hydrograph that is not within the recorded range of Trinity River hydrology. What is more, Alternative 2 would demand more water from Trinity Reservoir, and would increase economic impacts to flat water recreation earlier in the season (before Labor Day) than the Proposed Action.

***Alternative 3 - Action Plan Flows (Proposed)***

Alternative 3:

- Increases flows in the lower Klamath River above levels observed during the 2002 fish die-off; and
- Adheres to ramping rates from Lewiston dam that comply with criteria established in the EIS/EIR.

The Proposed Action, employs the most water conservative approach to addressing adverse in-river conditions in the lower Klamath River. The preventative release would utilize a total of 33,000 af of water over the baseflow volume. This would leave approximately 17,000 af of water available to initiate the emergency response flow.

The Proposed Action would minimize erratic impacts to Trinity River flows and would occur late enough in the summer (after Labor Day) so that economic impacts to flat water recreation would be minimized. Though late-summer storms that cause such flow increases as those proposed are rare, the hydrograph for this alternative lies within the natural range of the historic unimpaired hydrology for the Trinity River system (USFWS and Hoopa Valley Tribe 1999).

**Socioeconomic**

***Alternative 1 - No Action***

Under the No Action Alternative there would be no direct socioeconomic effects in 2003. However, under any alternative, if a fish die-off in the lower Klamath River were to occur, the long term economic effects could be substantial to Tribal, commercial and sport fish industries.

Under the No Action Alternative, there would be no changes in water delivery to the CVP. Therefore there would be no adverse socioeconomic effects to Central Valley Project power generation or water deliveries.

***Alternative 2 - Hybrid Pulsed/Sustained Flow and  
Alternative 3 - Action Plan Flows (Proposed)***

The proposed Lewiston Dam releases to the Trinity River, under both action alternatives, would not effect the forecasted diversions from the Trinity River basin to the Sacramento River basin. Diversions would fluctuate as weather conditions dictate, but releases in excess of powerplant capacity would not be expected to occur at Trinity, J.F. Carr, and Spring Creek Powerplants. An additional release volume from Trinity Powerplant would

be needed in order to support the corresponding flow increase to the Trinity River below Lewiston Dam.

Alternatives 2 and 3 increased releases to the Trinity River of up to 50,000 af, as authorized by Judge Wanger, would have no impact to Central Valley Project (CVP) operations and water supply deliveries in 2003. Reclamation has negotiated an exchange agreement with the Metropolitan Water District (MWD) of Los Angeles such that Trinity Reservoir water used for the action will be exchanged for non-CVP water stored within Shasta Lake. This ensures normally scheduled CVP deliveries this year. Reduction in Trinity Reservoir CVP storage could potentially have a minor impact to future water supplies; however, current high carryover storage levels in northern CVP reservoirs indicate that winter 2003/2004 runoff will probably fill northern CVP reservoirs to their flood control limitations.

### **Water Quality**

#### ***Alternative 1 - No Action***

No impacts to water quality.

#### ***Alternative 2 - Hybrid Pulsed/Sustained Flow***

This alternative would reduce water temperatures in the Trinity River and lower Klamath River; however, due to the short duration of the pulses (Figure 2), it is expected that decreases in water temperatures would be ephemeral unless the sustained release portion of Alternative 2 was enacted.

With implementation of Alternative 2, increased turbidity might be seen on the rising limb of each pulse.

#### ***Alternative 3 - Action Plan Flows (Proposed)***

Temperature models indicate that the Proposed Action would reduce water temperatures as far downstream as the lower Klamath River. Decreases in water temperatures would vary according to ambient air temperatures, but on average the lower Klamath River could experience a decrease in water temperature of about 1 degree centigrade.

### **Recreation and Public Safety**

#### ***Alternative 1 - No Action Alternative***

Implementation of the No Action Alternative would not impact recreational use or create concerns for public safety on the Trinity Reservoir or Trinity River.

***Alternative 2 - Hybrid Pulsed/Sustained Flow and  
Alternative 3 - Action Plan Flows (Proposed)***

Alternatives 2 and 3 would have similar impacts to recreational use of the Trinity Reservoir and Trinity River. Trinity Reservoir has a maximum storage capacity of approximately 2.4 million acre-feet (maf). Current storage in Trinity Reservoir is approximately 2.2 maf, which is 92% of capacity and 125% of the 15-year average for this time of year. The most recent operations forecast, which includes Lewiston Dam releases to the Trinity River of 450 cfs, projects Trinity Reservoir storage to fall to 1.9 maf (elevation 2334 ft) by the end of September, which is 127% of the 15-year average for the end of a water year. An additional 33,000 af release would reduce the Trinity Reservoir storage by two feet (elevation 2,332 ft) by the end of September, whereas an additional 50,000 release would reduce the Trinity Reservoir storage by three feet (elevation 2,331 ft) by the end of September.

These reductions in water level would reduce the total surface area available for boating and other recreational surface activities. However, the decrease in usable surface area would unlikely be noticed by the average user and lake level would still be higher than last year. This lowering in the reservoir level is not likely to degrade aesthetic values associated with recreational use. In addition, most water used by these alternatives would be released after Labor Day, the last major weekend of the summer season, and would minimize both recreational and economic impacts.

Increased flows on the Trinity River from Alternative 2 would likely have some short-term and minor negative impacts to recreational anglers (e.g., fluctuating flows strand or float unaware fishermen), tribal fishery activities (e.g., ability of tribal members to manually fish river deployed nets), and river dredge activities (e.g., high-flow related removal of anchoring). However, concerns have been raised with the multiple pulses associated with Alternative 2 because its erratic flow changes (from multiple 2,000 cfs pulses; Figure 2) may adversely impact public safety.

Increased flows from the Proposed Action would likely have similar short-term negative impacts to tribal fishery activities and river dredge activities as in Alternative 2, however, these impacts are expected to be reduced as multiple peaks are not proposed. In comparison, the gradual ramp down of Alternative 3 would be less disruptive to angling activities compared to repeated pulse flows. What is more, white water boating activities, which are a major use of the river this time of year, would benefit more from the Proposed Action than either of the other alternatives.

### **Cultural Resources**

Implementation of the Proposed Action would have no impacts on cultural resources (historic properties) within the project area, which includes the shoreline of Trinity Reservoir and banks of the Trinity River.

It is estimated that release of approximately 50,000 af of water from Trinity Reservoir will lower lake levels approximately 2 to 3 ft. This decrease in water level, compared to the No Action Alternative, could result in the increased exposure of cultural resources

within the reservoir's inundation zone. However, the current storage and elevation of Trinity Reservoir, as of August 12, 2003, is greater than the same period time last year, and the changes anticipated (with a 2-3 ft drawdown) are within the range of existing drawdowns. Therefore, reservoir drawdown resulting from implementation of this action would not change effects on cultural resources.

Previously conducted record searches indicate the presence of historic and prehistoric cultural resource sites primarily on the river terraces of the Trinity. However, the EIS/EIR states that it is unlikely that even 30,000 cfs peak flows would have major impacts on cultural resources given that prior to the construction of the dam, historic peaks were 70,000 cfs or greater and that the remaining cultural resources are well above the floodplain. Because the instantaneous maximum flow of Proposed alternative is 1,650 cfs, and is constrained to the existing flood plain, cultural resources along the river would not be affected.

A Programmatic Agreement (PA) between the Hoopa Valley Tribe, Fish and Wildlife Service, Reclamation, Bureau of Land Management, State Historic Preservation Officer and the Advisory Council for Historic Preservation for compliance with Section 106 of the National Historic Preservation Act is in place for the Trinity River Mainstem Fishery Restoration Project. As required by the PA, the actions provided for in the Cultural Resources Management Plan will be followed for the Proposed Alternative.

### **Indian Trust Assets**

Though protective of terrestrial Tribal Trust Assets, the No Action Alternative would probably not be protective of aquatic Tribal trust resources (e.g., Trinity River salmonids, sturgeon, and lamprey). Alternatives 2 and 3, however, would likely benefit Trinity River fishes and would have no negative impacts on other Indian Trust Assets (e.g., willow shoots, blackberries, bears, waterfowl, etc.).

### **Other Potential Areas of Impact**

Hydrographs for Alternatives 2 and 3 are considerate of, and would not have any impacts on, the Hoopa Valley Tribe's White Deerskin Boat Dance Ceremony which is held during this time period..

## **OTHER IMPACTS AND COMMITMENTS**

### **Cumulative Impacts**

Cumulative impacts are defined as impacts on the environment, resulting from incremental impact of the action when added to other past, present, or reasonably foreseeable future actions. The National Environmental Policy Act (NEPA) requires an assessment of potential cumulative impacts as a result of any proposed action with regard to other past, present, and reasonably foreseeable projects.

Restoration of the Trinity River basin, between Lewiston Dam and the confluence with the Klamath River, is mandated in the Trinity River Basin Fish and Wildlife Management

Act (P.L. 98-541) and the Central Valley Project Improvement Act (P.L. 102-575). Restoration actions are described in the EIS/EIR and its associated Record of Decision (ROD).

While the existing ROD was found to be unlawful due to NEPA procedural inadequacies, as a result of the litigation in *San Luis & Delta Mendota Water Authority, et al. v. Norton*, the Court stated that non-flow actions associated with the Mainstem Trinity River Fishery Restoration Program should proceed, pending the outcome of supplemental environmental documentation and a subsequent ROD. The basic science and environmental analyses associated with restoration activities are still considered valid.

The existing ROD mandates that the following actions be achieved to restore the Trinity River's anadromous fishery and its associated habitat:

- Implement a variable flow regime
- Construct 44 mechanical channel rehabilitation sites
- Conduct sediment management projects including addition of spawning and geomorphic gravels
- Engage in watershed restoration activities to reduce fine sediment inputs to the mainstem
- Implement infrastructure improvements to accommodate flow changes
- Establish an adaptive environmental assessment and management program

Reclamation is proceeding with implementation of the existing ROD, with the exception of the variable flow regime, which has been capped by court order at the dry year water volume.

Implementing the Proposed Action would not have any adverse cumulative effects on the Trinity River or its fishery and wildlife resources. Furthermore, in combination with ongoing restoration projects, the Proposed Action should enhance in-river conditions for the short-term and long-term benefit of anadromous fish populations, riparian vegetation diversity, and associated populations of native wildlife.

### **Growth Inducing Impacts**

Implementation of the Proposed Action would not create any jobs or require additional housing, consequently, no growth inducing impacts would occur. The action is being conducted solely for the benefit of populations of anadromous fish and is a one time event conducted over a three week period.

### **Environmental Justice**

Implementation of the Proposed Action would not result in a change to land use or influence existing social and economic characteristics within the region. Therefore, no minority, low-income populations, or communities would be disproportionately affected.

## REFERENCES

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- Trinity River Restoration Program. 2003a. DRAFT Implementation Strategy, Potential 2003 Fall Flow Releases. Memo to Trinity Management Council submitted June 26, 2003. 6 pp.
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- U.S. District Court, Eastern District of California. 2003b. Memorandum Decision and Order Re: Federal Defendant's Motion to Modify Injunction Re: Supplemental EIS; Defendant Hoopa Valley Tribe' Motion for Partial Stay Pending Appeal and for Modification of Injunctive Relief. Dated 4 April 2003. Issued by Oliver W. Wanger, United States District Judge.
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- U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, Hoopa Valley Tribe, and Trinity County. 2000. Trinity River Mainstem Fishery Restoration Environmental Impact Statement/Environmental Impact Report (EIS/EIR).
- U.S. Fish & Wildlife Service, Hoopa Valley Tribe. 1999. Trinity River Flow Evaluation Final Report. Report submitted to the Secretary, Department of the Interior. 308 pp.

## **LIST OF PREPARERS**

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Jim West, Archaeologist, Mid-Pacific Region

**LIST OF AGENCIES AND PERSONS CONSULTED**

In addition to working with members of the TAMWG and the TMC (Public Involvement Section), Table 2 provides a list of the personnel who provided input to the program.

Table 2. July 23, 2003 list of organizations and individuals that attended various meetings to develop or evaluate recommendations for the fall flow schedule and recommended action.	
ORGANIZATION	NAME
California Department of Fish and Game	Wade Sinnen Associate Biologist (Marine Fisheries)
California Department of Water Resources	Curtis Anderson Civil Engineer
Hoopa Valley Tribe: Fisheries	Robert Franklin Senior Hydrologist
National Oceanic and Atmospheric Administration: Fisheries	Mike Kelly Fisheries Biologist
Trinity County Natural Resources Department	Tom Stokely Senior Environmental Planner
U.S. Forest Service, Shasta-Trinity National Forest Trinity River Management Unit	Loren Everest Fisheries Biologist
U.S. Forest Service, Six Rivers National Forest, Lower Trinity River Ranger District	Anita Andazola Fisheries Biologist
U.S. Fish and Wildlife Service	Charlie Chamberlain Supervisory Fisheries Biologist
U.S. Fish and Wildlife Service	Scott Foott Fisheries Biologist (Pathology)
Water Quality Control Board: North Coast Region	Dave Hope Environmental Scientist
Yurok Tribe	Dave Hillemeier Fisheries Program Manager
Yurok Tribe	Tim Hayden Senior Fisheries Biologist

## APPENDIX A – RESPONSE TO COMMENTS RECEIVED

Comments were solicited from the Trinity Adaptive Management Working Group (TAMWG) regarding the March 18<sup>th</sup> Plan. Comments received by July 18, 2003 were considered in developing the fall flow schedule proposed in this Action Plan. A summary of commentors is shown in Table 1. Responses to the general categories of comments received are shown in Table 2.

**Table 1. List of Commentors for Developing the Trinity River Fall Flow Action Plan**

Commentor	Individual or Signatory	Agency / Affiliation	Date Prepared	Date Received
1	Serge Birk	Central Valley Project Water Association	July 18, 2003	July 18, 2003
2	Paul Zedonis	U.S. Fish & Wildlife Service	July 2, 2003	July 2, 2003
3	Byron Leydecker	California Trout	July 7, 2003	July 7, 2003
4	James Feider	Northern California Power Association	No Date	July 18, 2003
5	Eric N. Robinson	San Luis & Delta-Mendota Water Authority, Westland's Water District, San Benito County water District	July 18, 2003	July 18, 2003
6	James Feider	Trinity Adaptive Management Working Group, Socio-Economic Sub-committee	June 30, 2003	June 30, 2003

**Table 2. – Response to Comments Received**

Commentor	Comment	Response
6	Are pulse flows natural?	At the 7/23-24/2003 meeting of Trinity Management Council (TMC) technical staff, we examined Appendix F of the Trinity River Flow Evaluation Final Report and noted multiple years with late summer / early fall flow spikes. These spikes would infrequently exceed 2,000 cfs.
4	Will increased flow cause Klamath origin fish to stray into the Trinity River?	California Department of Fish and Game (CDFG) notes that there is no evidence that previous late summer pulse flow releases (for past boat dances) in the Trinity River caused straying of Klamath River Chinook into the Trinity River, based on analysis of coded wire tags (CWT's) recovered at the Willow Creek Weir (Wade Sinnen, CDFG, pers. comm.).

**Table 2. – Response to Comments Received (Continued)**

Commentor	Comment	Response
3,6	Use a bench flow with, or instead of, a pulse flow.	The Action Plan no longer recommends using a pulsed flow approach. If the Action Plan's Proactive Release is implemented, then there will be a gradual ramp down from the separately scheduled releases for the Boat Dance ceremony of 1650 cfs on 8/27/2003 down to 1000 cfs on 9/15/03. A gradual drop from the 1650 cfs release was seen as more representative of natural runoff recession than a bench.
3	Start increased flows later than August 15.	The Action Plan reflects this suggestion. The Proactive Flow schedule initiates on August 27 to coincide more closely with Trinity River Chinook run timing. Irrespective of the Action Plan, there will be increased releases starting on 8/24/03 for the White Deerskin Boat Dance ceremony. The Action Plan's Proactive Release schedule commences at the end of releases for the Boat Dance Ceremony on 8/27/2003 and will conclude on 9/16/2003.
1	Consider increased flows higher than 2000 cfs.	The Emergency Response option allows for a bench flow release of 2000 cfs. The 2,000 cfs bench limits risk of stranding juvenile salmonids behind the berms on the upper Trinity River and minimizes public safety issues.
6	Public Safety Concerns	The Action Plan no longer includes short duration pulse flows and utilizes instead increased (greater than baseline, i.e. >450 cfs) bench flows, either gradually declining bench flows (the Proactive Response) or a stable bench flow (the Emergency Response). This should decrease the risk to public safety. Prior notification will also be used to improve safety.
1,2,4	What are the monitoring and evaluation needs?	A more detailed monitoring plan is being developed. A list of planned relevant monitoring activities is included in the Action Plan.
4,5	Proposed Action requires NEPA review and ESA Section 7 consultation.	NEPA review and ESA consultation has been completed