

WATERSHED COMPONENTS OF THE ROD

- Watershed restoration efforts, addressing negative impacts which have resulted from land use practices in the Basin; and (pg. 3)
- **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. (pg. 10)
- **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, reserves, 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. (pg. 11)
- **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. (pg. 14)
- 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. (pg. 15)

- 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...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. (pg. 18)
- ...implementing the Preferred Alternative also will entail the development of more specific plans to implement non-flow related recommendations. (pg. 18)

Watershed Protection. Watershed protection practices under this alternative would not differ from the No Action Alternative.

Fish Habitat Management. This alternative would incorporate the same mechanical channel rehabilitation projects and schedule described in the Flow Evaluation Alternative; however, since this alternative does not include an adaptive management program, a less systematic review of the projects would be conducted at year 3 before commencing on the balance of the proposed projects. As in the Flow Evaluation Alternative, the Percent Inflow Alternative assumes that flow alone would maintain the proposed and existing projects. Consequently, no mechanical maintenance would be necessary. Spawning gravel requirements for this alternative are estimated to average 950 yd³/yr, with a range from 0 yd³ in critically dry water years to 4,650 yd³ in extremely wet water years. These estimates assume that no gravel placement would be necessary as a result of Safety of Dam releases.

Fish Population Management. Population management under this alternative would be the same as the No Action Alternative.

Dam Modifications. Reviews of historic hydrology, in terms of weekly inflows to the Trinity Reservoir, indicate the maximum release would be about 11,000 cfs. Accordingly, no modification to either Trinity or Lewiston Dams was assumed necessary.

Estimated Costs. The cost of constructing the 47 new channel rehabilitation projects follows: 44 channel rehabilitation projects at \$300,000 each and three side-channel projects at \$50,000 each. Of the total cost of \$13,350,000, approximately 55 percent is expected to be incurred in the first 3 years.

Spawning gravel costs are estimated to average \$19,000 annually, with a range of \$0 in critically dry and dry water years to \$93,000 in extremely wet water years.

2.1.6 Mechanical Restoration Alternative

This alternative depends on mechanical means to restore fish population. Flows would be maintained at not less than 340,000 acre-feet per year (af/yr). The level of mechanical rehabilitation projects identified in the Flow Evaluation and Percent Inflow Alternatives would be the same for this alternative. However, unlike those alternatives, the mechanical rehabilitation projects would be mechanically maintained because the relatively limited flows associated with this alternative would be insufficient to promote adequate streambed and sediment mobilization.

(In the Mechanical Restoration Alternative the) rehabilitation projects would be mechanically maintained because the relatively limited flows...would be insufficient to promote adequate streambed and sediment mobilization.

A key element of this alternative would be the inclusion of an extensive watershed protection component, which would limit sediment inputs into the mainstem Trinity River.

Water Management. Annual releases would be identical to those for the No Action Alternative (see Table 2-1).

Water Operations. The diversion pattern and carryover storage requirements would be identical to those for the No Action Alternative.

The Mechanical Restoration Alternative would include measures to limit sediment inputs...including accelerated road decommissioning, road maintenance, and road rehabilitation.

Watershed Protection. The Mechanical Restoration Alternative would include measures to limit sediment inputs into the mainstem Trinity River beyond those assumed under the No Action Alternative, including accelerated road decommissioning, road maintenance, and road rehabilitation on public and private lands. These additional measures would essentially represent a modification of a portion of a 1993 proposal by the Committee for Healthy Communities in Healthy Forests, as endorsed by the Trinity BioRegional Group and Trinity County for implementation of the President's Forest Plan.

Accelerated road decommissioning, road maintenance, and road rehabilitation would primarily be focused on public lands within Trinity National Forest watershed (South Fork and mainstem areas below Lewiston Dam), which contains approximately 3,450 miles of mostly unpaved roads. The area would also include a small portion of the Six Rivers National Forest in the lower South Fork and lower mainstem watersheds, as well as the private lands and county roads within the entire Trinity River watershed. This type of proposed work is identified as critical in restoring salmon and steelhead habitat as part of the ROD on the President's Forest Plan (Option 9: U.S. Department of Agriculture and U.S. Department of the Interior, 1994). The USFS, through the plan, adopted new Riparian Management Zone Standards and Guidelines prescribing improved standards for roads and decommissioning of those roads deemed unnecessary.

Road decommissioning would consist of removing culverts, out-sloping, and ripping roads (primarily Level 1 roads) that cannot be maintained with existing and foreseeable budgets. Many of the roads are already closed to public traffic, but pose potential and ongoing erosion problems. Rehabilitation of the remaining roads would consist of resurfacing or culvert replacement over 22 years to support ongoing USFS, county, and private efforts, which are currently very limited due to funding and staffing. Annual maintenance, which is primarily grading and some placing of rock, would ensure that all drainage structures perform as designed.

BLM's Trinity River Watershed Analysis contains an average annual sediment yield estimate at Hoopa of 1,283 yd³ per square mile (U.S. Bureau of Land Management, 1995). Extrapolating this to the entire basin (exclusive of the areas upstream of Lewiston Dam and federally designated roadless/wilderness areas), the 2,223-square-mile area in question would produce approximately 2.85 million yd³ of sediment per year. Full-scale implementation of the watershed protection program would result in a reduction of 240,000-480,000 yd³/yr, which is approximately 9-17 percent of the average annual sediment produced in the Trinity River Basin.

Fish Habitat Management. Construction of the 47 channel rehabilitation projects described in the Flow Evaluation and the Percent Inflow Alternatives would be a major component of this alternative; however, since this alternative does not include an adaptive management program, a less systematic review of the projects would be conducted at year 3 before commencing on the balance of the proposed projects. Mechanical maintenance would be needed at these 47 sites, as well as the 27 existing sites. The maintenance schedule for the sites is the same as for the No Action Alternative.

This alternative also identifies 10 pools for dredging in the Trinity River mainstem (see Section 3.5.1 for information on fish benefits from the pools). These pools are located within a 21-mile stretch of the river between the old Lewiston Bridge (1.2 river miles [RM] downstream of Lewiston Dam) and an area 3 miles downstream of the confluence with Weaver Creek (Figure 2-4). Pool sizes range from approximately 5,000-10,000 yd³. Each pool would be dredged approximately every 4 years. Spawning gravel placement would be the same as the No Action Alternative.

Fish Population Management. Population management under this alternative would not differ from the No Action Alternative.

Dam Modifications. No modification to either Trinity or Lewiston Dams would be required.

Estimated Costs. The cost of constructing the 47 new channel rehabilitation projects follows: 44 channel rehabilitation projects at \$300,000 each and three side-channel projects at \$50,000 each. Of the total cost of \$13,350,000, approximately 55 percent is expected to be incurred in the first 3 years.

To manually remove vegetation from all 27 existing sites would cost a total of \$1,000 every 3 years. To mechanically remove root systems on channel rehabilitation projects, and to modify side-channel openings as needed, would cost a total of \$3,000 every 5 years.

To manually remove vegetation from all 47 proposed sites would cost a total of \$6,000 every 3 years. To mechanically remove root

systems on channel rehabilitation projects, and to modify side-channel openings as needed, would cost a total of \$30,000 every 5 years.

Spawning gravel requirements are assumed to be the same as the No Action Alternative. Average annual spawning costs were estimated at \$68,000; however, the actual yearly amount is largely dependent on Safety of Dam releases.

The expanded dredging plan would remove sediment from 10 pools within the mainstem of the Trinity River. Approximately 80,000 yd³ of sediment would be removed from these pools over a 4-year cycle. Assuming 20,000 yd³ are dredged each year at a cost of \$10 per yd³ (includes transport and storage), the annual labor cost would total about \$200,000.

The road maintenance cost is estimated at \$1,781,000 for the first year. Road decommissioning is expected to lower this cost by approximately 40 percent to \$1,069,000 by year 22 (average annual cost across the first 22 years is \$1,425,000). Perpetual road maintenance at the \$1,069,000 level is expected after reaching the 22-year mark.

Road decommissioning/rehabilitation is planned for only the first 22 years, at an average annual cost of \$1,123,000. Total road decommissioning/rehabilitation over the 22-year period would cost approximately \$24.7 million.

The reason for including (the State Permit Alternative) is that Reclamation's existing water permits with the SWRCB identify minimum Trinity River instream flow at 120,500 af.

2.1.7 State Permit Alternative

This alternative would reduce flows from the current level of 340,000 af/yr to the 120,500 af/yr level specified in Reclamation's seven California water permits issued in 1959. The reason for including this alternative is that Reclamation's existing water permits with the SWRCB identify minimum Trinity River instream flow at 120,500 af (the amount of water identified by Congress in 1955 as the minimum amount to be released down the Trinity River).

Water Management. Annual flows would be fixed at 120,500 af regardless of water-year class, excluding releases for other purposes such as the Trinity Reservoir Safety of Dam's criteria. Planned peak flows would be 250 cfs for a period of 30 days during November (Figure 2-6).

Water Operations. The diversion pattern would follow the same general approach as the No Action Alternative, although the total quantity of water diverted would be greater. Trinity Reservoir would be operated to maintain a minimum carryover storage of 400,000 af between water years.