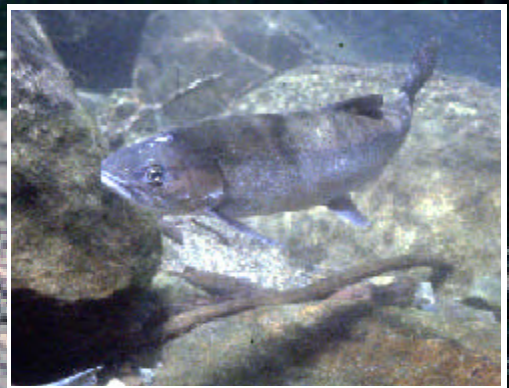


# Lower Santa Ynez River

## Volume I Management Plan

# Fish Management Plan



October 2, 2000

# LOWER SANTA YNEZ RIVER FISH MANAGEMENT PLAN

Prepared by:

Santa Ynez River Technical Advisory Committee

with Technical Support by

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Prepared for:

Santa Ynez River Consensus Committee

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# EXECUTIVE SUMMARY

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## THE CACHUMA PROJECT AND FISHERIES MOU

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The U.S. Bureau of Reclamation (Reclamation) operates the Cachuma Project (Project), a water supply storage reservoir on the Santa Ynez River. Lake Cachuma is formed by Bradbury Dam which was constructed from 1950-1953. The Project provides the primary water supply for southern Santa Barbara County and a portion of the Santa Ynez Valley. In addition to supplying water to water agencies, the Project also includes storage and later release of water for recharging groundwater resources in the Santa Ynez Valley. The Project yield and downstream water rights releases serve over 325,000 people in Santa Barbara County and over 38,000 acres of cropland in the Santa Ynez Valley. Water supplies from the Project support a multi-million dollar agricultural industry.

In addition to these municipal and agricultural beneficial uses, the Santa Ynez River also supports recreational uses such as fishing, boating and swimming and a variety of riparian, aquatic and estuarine ecosystems. These ecosystems include rare and endangered species of plants, fish, amphibians, and birds.

Bradbury Dam is located about 48.7 miles from the ocean. The dam divides the watershed in half, blocking upstream passage of spawning steelhead to the upper watershed.

The Project operations are under the continuing jurisdiction of the State Water Resources Control Board (SWRCB), which has requested recommendations for operational changes and management actions for maintenance of fisheries and other public trust resources in the Santa Ynez River downstream of Bradbury Dam (*i.e.*, lower Santa Ynez River). The framework for the fisheries program was established by the 1993 Fisheries Memorandum of Understanding (MOU).

Since 1993, a program of cooperative fisheries investigations and basin management planning has been underway in the Santa Ynez River. The planning process was initiated to respond to concerns about providing a reasonable balance in the allocation of Santa Ynez River water between public trust resources and consumptive uses and has focused on the Santa Ynez River basin downstream of Bradbury Dam. Participants in the program include Reclamation, local water agencies, Santa Barbara County, municipalities, state and federal resource agencies, environmental interest groups, and local landowners.



The MOU established two committees. The Consensus Committee, led by Reclamation, has addressed policy issues, and the Fisheries Technical Advisory Committee (SYRTAC), led by the California Department of Fish and Game (CDFG), has overseen the biological studies and analyses and provided technical input to the Consensus Committee. The MOU outlined a program of investigations and analyses to develop recommendations for long-term fishery management and project operations in the Santa Ynez River downstream of Bradbury Dam.

The SYRTAC was tasked with preparing a Fish Management Plan (Plan) for the lower Santa Ynez River. The Plan's goal is to identify, evaluate and implement management actions that will benefit fishery and aquatic based natural resources in the lower river. The Plan recommends specific management actions intended to improve conditions for native fishes, while avoiding adverse impacts to other species of special concern or habitat values. The Plan emphasizes actions that benefit southern California steelhead which were listed by National Marine Fisheries Service as endangered in 1997.

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## STEELHEAD AND THEIR HABITAT

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Steelhead are the ocean-going (anadromous) form of rainbow trout. They are born in freshwater, emigrate to the sea as juveniles ("smolts") to mature, and return to freshwater to spawn as adults. Steelhead in the Santa Ynez River historically migrated to habitat in the upper watershed, primarily above Bradbury Dam, to spawn and rear. Access by anadromous fish to these historical spawning and rearing areas was completely blocked by the construction of Bradbury Dam.



Two steelhead observed in Hilton Creek. Photo by J. Southwick

Spawning adults usually return from January through April. Recent surveys suggest that, under current conditions, small numbers of steelhead can enter the Santa Ynez River to spawn, usually in the lower tributaries (Salsipuedes and El Jaro Creeks). In wetter years, juvenile production has also been observed in the mainstem and upper tributaries (Quiota and Hilton Creeks). Juveniles spend one to three years in freshwater before migrating to the ocean, usually between February and May. Landlocked steelhead that have

adopted a freshwater-resident life pattern still exist above dams in the upper watershed.

Hydrologic conditions and water supply availability in the Santa Ynez River basin vary both seasonally and across years. The majority of rainfall and runoff occurs in the winter and spring months. Spills over Bradbury Dam have occurred in 17 out of 48 years and usually end in the spring or early summer. Other than the area fed by the Lompoc Wastewater Treatment Plant, there is often little or no flow in segments of the mainstem river above and below Lake Cachuma and in the lower reaches of the tributaries below Bradbury Dam from summer until the onset of the rainy season. Even before construction of dams in the basin, portions of the mainstem below the dam dried during the summer (Shapovalov 1944). As a consequence, historically steelhead used the lower mainstem mainly as a migration corridor to reach spawning habitat in the mid and upper basin, and in portions of tributaries that maintained perennial flow. Below Bradbury Dam, tributaries on the south side are more likely to be perennial than those on the north side.

Studies have shown that summer water temperatures in the mainstem Santa Ynez River frequently exceed thermal criteria developed for rainbow trout/steelhead in more northerly streams. The frequency and magnitude of warm water temperatures increase further downstream from the dam. Monitoring during downstream water rights (WR 89-18) releases showed that water temperatures increased rapidly as flow moved downstream (at 3.4 miles below the dam and further), despite moderately high release rates of 50 cubic feet per second (cfs) and 135 cfs. In the tributaries, summer water temperatures regularly exceed these guidelines in the downstream portions of El Jaro, Salsipuedes, Nojoqui and Hilton creeks, yet rainbow trout/steelhead have survived under these conditions. Further study is required to determine if thermal criteria developed in northern climes are appropriate for southern steelhead.

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## THE PLAN

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The Plan examines opportunities to maintain aquatic habitat to keep steelhead populations in good condition, and opportunities to improve habitat conditions in the lower Santa Ynez River and its tributaries. The Plan also evaluates and recommends flow- and non-flow-related actions that benefit public trust resources including other aquatic and riparian species. To achieve its objectives, the plan proposes management actions that provide a high benefit to fish or fish habitat, and are consistent with water supply availability, project facilities, access to private lands and competing demands for limited resources. The MOU participants are also presenting this consensus-based Fisheries Management Plan to SWRCB

for use in the fall 2000 water rights hearings to address fishery and public trust issues.

The Plan was developed from a wide range of potential management alternatives aimed at improving conditions for aquatic resources. Each of 48 alternatives was screened and ranked by SYRTAC members based on feasibility, biological benefits to fisheries resources, cost, likelihood of success, logistical constraints such as access to land, water operations, and institutional coordination. Hydrological and fisheries studies by SYRTAC provided technical understanding of the limitations, constraints and opportunities for applying the alternatives to the Santa Ynez River basin. Technical appendices provide full development and analysis of the management actions proposed in the Plan. The actions recommended in the Plan are consistent with those presented in CDFG's *Steelhead Restoration and Management Plan for California* (McEwan and Jackson 1996).

The recommended management actions are based upon an adaptive management strategy, enabling managers to respond to annual and seasonal variation in hydrologic conditions and water supply availability within the Santa Ynez River basin. This strategy allows Reclamation and the water agencies that contract for Cachuma Project water to implement measures on public lands and private property as opportunities become available. The majority of rainbow trout/steelhead habitat in the lower Santa Ynez River basin is located on private property. Phased implementation of specific project elements and management actions is included, based on access to lands and facilities. Implementation of actions will be accompanied by monitoring to evaluate performance of the action and to identify appropriate modifications, if needed.



The proposed management actions are designed to:

- Protect and improve instream habitat in the lower mainstem Santa Ynez River and tributaries downstream of Bradbury Dam;
- Create opportunities for successful migration, reproduction, and survival of anadromous steelhead; and
- Avoid adverse effects on other aquatic or riparian biological resources, including tidewater gobies, California red-legged frogs, southwestern arroyo toads, and California tiger salamanders.

The proposed management actions have been developed in concert with the need to deliver water supplies, provide for routine maintenance of existing facilities, and maintain groundwater recharge requirements as set forth in WR 89-18 (downstream water rights).

Reaches of the mainstem and tributaries below Bradbury Dam selected as having priority for habitat protection and improvement were identified based upon: (1) seasonal and annual instream flow patterns, (2) water temperature, (3) quality and suitability of existing habitat, (4) opportunities for habitat improvement, and (5) ownership of the subject habitat areas. Priority tributary habitats include Hilton Creek, El Jaro Creek, and Quiota Creek. Priority mainstem habitats include the reach between Hilton Creek and the Highway 154 Bridge, the reach between Bradbury Dam and Hilton Creek, and, in wet years and the year following a wet year, the mainstem down to Alisal Bridge.

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## RECOMMENDED ACTIONS

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Recommended actions will benefit steelhead and other aquatic species both directly and indirectly by (1) creating new habitat within the lower Santa Ynez River and tributaries, (2) improving habitat conditions within the lower Santa Ynez River and tributaries, (3) improving access to important spawning and rearing habitat in the lower mainstem and its tributaries, and (4) increasing public awareness and support for beneficial actions on private land.

In addition to the proposed actions, a long-term monitoring program will be implemented to track trends in available habitat and rainbow trout/steelhead use of that habitat. This program is based on the existing SYRTAC long-term study plan and the actions proposed in this plan.

The recommended management actions include the following:

- I. **Create New Habitat.** Actions to increase the availability and quality of habitat for steelhead and other aquatic resources include:
  - Conjunctive use of mainstem rearing target flow releases and downstream water rights releases to extend the period of time each year when instream flows are present in Hilton Creek and the mainstem river. This action will provide improved summer rearing conditions and habitat protection for steelhead. Modifications to reservoir operations and surcharge levels will provide sustained target flows. Releases will be provided via the Hilton Creek supplemental watering system

to meet flow targets in the Santa Ynez River of 2.5 or 5 cfs at Highway 154 Bridge depending on reservoir elevation, or of 10 cfs at Highway 154 Bridge in years when the reservoir spills at least 20,000 acre feet (AF). In these wet years and the year following such a wet year, a flow target of 1.5 cfs at the Alisal Road Bridge will also be maintained. In critically dry years, when the reservoir elevation falls below 660 feet mean sea level (MSL), periodic releases will be made to refresh the Long Pool and Stilling Basin near Bradbury Dam. In these years, fish in Hilton Creek will be rescued and moved to mainstem habitat if necessary. Reclamation proposes to raise the full pool of the reservoir from the current 750 feet above MSL to 753 feet above MSL (*i.e.*, 3-foot surcharge). The additional water provided by the surcharge will support fish enhancement flows. This water will be available prior to implementation of the flow targets described above.

In order to implement the 3-foot surcharge, the flashboards on the Bradbury Dam spillway gates must be modified and there must be sufficient runoff to fill the additional space in the reservoir. Modification to allow an interim level surcharge, 1.8 feet, is complete. The modification will also accommodate the 3-foot surcharge once environmental review is complete. In the interim, modified rearing target flows at the Highway 154 bridge (1.5 and 2.5 cfs based on reservoir storage and 5 cfs in spill years) will occur until the 3-foot surcharge, required for implementation of the long-term target flows described above, is in place. In addition, refuge pools will be maintained in the Refugio and Alisal reaches during this interim period.

- Establish an Adaptive Management Account with 500 AF to provide a dedicated amount of water that can be released as necessary to maximize the biological benefit to aquatic resources downstream. This water can be used to further enhance Hilton Creek habitat, mainstem habitat, or fish passage releases.
- Modifications to lower Hilton Creek to provide additional new summer rearing habitat through establishment of a reliable water supply meeting specific water temperature and dissolved oxygen (DO) criteria; and construction of a 1,500-foot long channel extension, designed and managed specifically to provide steelhead spawning and rearing habitat (if determined to be feasible).



II. **Improve Existing Habitat.** Actions to increase the quality of habitat for the fishery downstream of Bradbury Dam include:

- Protection and enhancement of steelhead spawning and rearing habitat in tributaries through the establishment of conservation easements and/or leases, and implementation of habitat improvements along those easements, such as riparian planting, structural improvements to instream habitat, and bank stabilization. Currently, SYRTAC is working to protect up to 10 miles of stream in the El Jaro watershed. Additional enhancement actions will occur as opportunities to work with interested landowners arise.
- Structural improvements in mainstem pools and riparian planting along the mainstem to increase the amount and quality of suitable habitat.

III. **Improve Access to Habitat.** Actions to make new habitat available or existing habitat more accessible include:

- Establish a Fish Passage Account to provide a dedicated water supply to create additional migration opportunities for steelhead. In years when the reservoir surcharges to 3 feet, 3,200 AF of the surcharged water will be allocated to the Fish Passage Account. The water will be released in subsequent years to supplement the descending limb of naturally occurring storm hydrographs until there is no more water in the Account or the reservoir has surcharged again. Once the 1.8-foot surcharge is in place, interim Fish Passage Account allocations (2,500 AF) will occur prior to implementation of the proposed 3-foot surcharge.
- Modification of fish passage impediments in the tributaries to enhance the availability of habitat for steelhead spawning and rearing. A number of impediments have been identified and will be removed or modified to provide/improve passage on Hilton, Quiota, Salsipuedes, and El Jaro creeks. For example, improve passage over a partial impediment at the chute pool to increase access to approximately 2,400 feet of habitat upstream to the Highway 154 culvert; provide passage through the Highway 154 Culvert which acts as a complete barrier providing access to the upper reaches of the creek.
- Continue to investigate opportunities to provide passage for steelhead around Bradbury Dam.

IV. **Increase Public Awareness.** Actions to increase public awareness and support for beneficial actions on private land include:

- Public education and outreach will provide direct and indirect benefits to steelhead and other fish resulting from increased awareness by local landowners and the public of types of actions and land-use practices which will benefit native fish, and increased awareness and sensitivity regarding impacts to the steelhead population resulting from recreational and illegal harvest. This effort is anticipated to provide increased political support for obtaining additional funding for habitat improvement projects on the mainstem and tributaries, and opportunities to implement other actions designed to protect and improve steelhead habitat on private property.
- Provide Technical Assistance. Reclamation and the Member Units will provide technical assistance and assist in grant acquisition for voluntary actions to improve steelhead habitat on private land. Private landowners will also be assisted in securing funding for such actions through grant awareness programs. These programs will be supported through the public education and outreach program, to make landowners and the public aware of these resources.

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## IMPLEMENTATION

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The proposed actions will be implemented in a phased approach. Those measures under the jurisdiction of Reclamation and/or the Member Units that do not require the construction or modification of facilities will be implemented immediately. A schedule for accomplishing measures requiring the construction of facilities has been established for actions on Reclamation property. Management actions that require the permission or participation of private landowners will be implemented in consultation with the landowners.

Management actions that can be implemented immediately (or as soon as weather conditions permit) include:

- surcharging the reservoir (0.75 feet) to support mainstem target flows (surcharge currently implemented);
- interim mainstem rearing target flows and conjunctive use with the downstream water rights releases to provide year-round habitat;
- supplemental watering of Hilton Creek to provide new summer rearing habitat using the existing gravity driven system (the pumping system is anticipated by 2002);

- fish rescue operations in Hilton Creek, if needed;
- long-term monitoring program; and
- implementation of a public education and outreach program.

The remaining management actions will be completed in accordance with the following timetable:

- flashboards enabling the proposed 3-foot surcharge that would provide 9,200 AF for fish enhancement releases: 3,200 AF for the Fish Passage Account; 500 AF for the Adaptive Management Account; and 5,500 AF dedicated to support mainstem target flows. (construction of the flashboard modification to allow the 1.8 foot surcharge [environmental review complete] and accommodate the 3 foot surcharge anticipated in 2001; environmental review complete for the 3 foot surcharge complete by 2004);
- pool habitat enhancement on public property in the near future (further site analysis is required);
- Hilton Creek cascade/chute fish passage project (in place by 2001) and Highway 154 Culvert fish passage project (in place by 2002);
- Hilton Creek channel extension (in place by 2004 if project is feasible);
- establishment of the Fish Passage Account: interim allocation of 2,500 AF with a 1.8 foot surcharge (anticipated by the first spill after 2001), or long-term allocation of 3,200 AF with the proposed 3-foot surcharge (the year of the first spill after environmental compliance is completed by 2004); and
- establishment of the Adaptive Management Account when the reservoir surcharges to the proposed 3 feet (scheduled for the first spill after environmental compliance is achieved, completion is anticipated in 2004).

Actions on private lands will be implemented within the constraints and schedules established by landowners, permitting processes, and funding availability. By 2001, the Member Units expect to obtain conservation easements and/or leases on properties in the El Jaro Creek drainage, which will create opportunities for enhancement and restoration of approximately 10 miles of upper El Jaro Creek and two tributaries of El Jaro Creek. Currently, the landowners and the Cachuma Operation and Maintenance Board (COMB) are conducting property appraisals and other investigations for conservation easements and/or leases.

The SYRTAC will continue to research mechanisms for allowing steelhead to migrate around Bradbury Dam. The SYRTAC has identified a number of technical and institutional challenges to providing safe passage to and from the upper river basin. These challenges must be addressed before implementation of this option.

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## LONG-TERM EVALUATION

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The long-term goal of this Fish Management Plan is the protection and recovery of southern steelhead in the Lower Santa Ynez River. This Plan outlines a strategy that is expected to provide the habitat requirements needed to better support steelhead in the lower river. The plan should also help support the habitat requirements of many of the other riparian and aquatic species.

The SYRTAC acknowledges that the recovery of an endangered species is a slow process that will likely take decades. Many factors critical to the recovery of this anadromous species are beyond the control of Reclamation, the Member Units and the resource agencies responsible for their protection. Such factors include hydrological conditions (*e.g.*, droughts) and impacts to the species during its oceanic lifestage.

Measures to evaluate each of the recommended management actions are described on a action-by-action basis. Evaluation criteria include 1) meeting specified streamflow targets, 2) providing passage opportunities over migration impediments and barriers and 3) protecting and enhancing quantities of instream and riparian habitat. Additionally, an annual monitoring program will continue to provide data on adult migration and spawning and juvenile rearing. Environmental factors that affect such reproductive success will also be measured and correlated. These data will be analyzed for evidence of long-term trends, with the aim of determining if the management actions are providing the expected positive trend in steelhead use of the lower river.

This Plan is based upon an adaptive management strategy that allows the recommended actions to evolve as new information becomes available. An Adaptive Management Committee will be formed to evaluate the trends in steelhead use and, if necessary, recommend alternatives and revisions to the recommended actions outlined in this Plan. The trends will be evaluated at least annually and the results presented to the Consensus Committee which will be set up to guide the long-term process.

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## FUNDING

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Reclamation and the Member Units will fund the actions recommended in this plan from the Cachuma Project Contract Renewal Fund and the Warren Act Trust Fund. These funds were established in 1996 during the contract renewal process to provide money for enhancement and watershed improvements. The funds come from an assessment on water



taken from the Cachuma Project and from the use of Lake Cachuma to store State Water Project water. In addition, the Santa Barbara County Water Agency is required to provide \$100,000 annually for projects that may include conservation-type activities related to the Cachuma Project. It is estimated that in the future, approximately \$300,000 per year will be dedicated to restoration activities.

In addition to these funds, Reclamation and the Member Units are seeking funds from other sources such as the State's Watershed Restoration and Protection Council, the CDFG's Fishery Restoration Grants Program, the California Coastal Salmonid Recovery Program, the National Fish and Wildlife Foundation, and the SWRCB's Non-Point Source Pollution Program to supplement funds available from local sources. The Member Units have been successful in obtaining outside funding for enhancement projects. To date, grants and additional funding totaling almost one million dollars have been approved by various funding agencies.



The Santa Ynez River Valley