

**Site PR-2-1B, Prefumo Creek Golf Course Dams**



**Figure 13. Photograph of Prefumo Creek, Fish Barrier PR-2-1B**

**Problem:** Two small check dams create a change in grade of approximately 3-feet each. These structures impede the upstream passage of adult salmonids under low flow conditions and juveniles under all flow conditions.

**Project Description:** These barriers will be made passable at low flows by cutting notches, 12 to 18 inches deep and 4 to 6 feet wide in the centers to concentrate low flows. The remainder of the structures can be left in place to prevent upstream downcutting and other possible hydrologic impacts. A single rock weir below each weir will further improve passage for smaller fish.

**Expected Project Benefits:** Altering of these barriers would facilitate migration to upper sections of the drainage where high quality rearing and spawning habitat exists.

**Estimated Project Cost: \$6,000**

**Site PR-2-2B, Prefumo Creek Riprap Barrier**



**Figure 14. Photograph of Prefumo Creek, Fish Barrier PR-2-2B.**

**Problem:** This is a grouted riprap dam approximately 5-feet in height and 40-feet wide. This structure is a migration barrier for adult and juvenile salmonids under all flow conditions and is the uppermost obstacle preventing fish migration to an extended range of upstream habitat.

**Project Description:** A 5-step rock weir fishway along with minor modifications of the dam to concentrate flow will provide for fish passage.

**Expected Project Benefits:** When the above projects are complete, removal of this last fish passage will allow migrating trout access to the extended habitat areas in the upper Prefumo Creek drainage.

**Estimated Project Cost: \$32,000**

**Site ST-2-1B, Stenner Creek at Mustang Village Crossing**



**Figure 15. Photograph of Stenner Creek, Fish Barrier ST-2-1B.**

**Problem:** This is a concrete flash board dam that has been abandoned and is no longer used for stream diversions. The structure channels the stream flow through a 4-foot wide notch that creates a drop of approximately 3-feet under low flow conditions, preventing free upstream passage for adult and juvenile fish.

**Project Description:** The spillway section of the dam between the two abutment wing walls will be removed down to its foundation or to bedrock.

**Expected Project Benefits:** The removal of the spillway section of the dam will allow a natural stream gradient to be restored and allow full unimpaired passage for adult and juvenile fish.

**Estimated Project Costs: \$5,500**

**Site ST-2-2B, Stenner Creek Concrete Apron**



**Figure 16. Photograph of Stenner Creek, Fish Barrier ST-2-2B**

**Problem:** This is a concrete low-flow vehicle crossing that has a drop of approximately 2-feet at the downstream end. This is a barrier to juvenile fish passage at low flows when the smooth concrete barrier causes water to sheet and become too shallow for fish passage. It may also

be a velocity barrier at high flows to migrating adult fish.

**Project Description:** Passage will be improved by constructing a series of rock weirs in the downstream channel to an elevation that will back water up over the concrete crossing.

**Expected Project Benefits:** Deepening the flow of water over the apron will provide access for both juvenile and adult fish.

**Estimated Project Costs: \$5,500**

**Site ST-2-3B, Stenner Creek Agricultural Dam at Cal Poly**



**Figure 17. Photograph of Stenner Creek, Fish Barrier ST-2-3B.**

**Problem:** This is a concrete flash board dam that is no longer used for stream diversion. The barrier has a partial opening broken out, but continues to prevent free upstream passage for adult and juvenile salmonids during low flows due to an abrupt elevation change.

**Project Description:** The dam will be modified by removing the center concrete weir and leaving the abutments and spillway plunge pool in place.

**Expected Project Benefits:** Improvement of this low flow barrier will increase juvenile stealhead access to quality rearing habitat and will improve passage of adult fish.

**Estimated Project Cost: \$27,100**

**Site ST-3-1B, Stenner Creek at Cheda Pond Diversion Fish Barrier**



**Figure 18. Photograph of Stenner Creek, Fish Barrier ST-3-1B**

**Problem:** This is a small concrete diversion dam that provides water to Cal Poly. Three boulder weirs were previously added to the channel below the dam to provide fish passage, but one more weir is needed to complete the job.

**Project Description:** An additional boulder weir will be added at the base of the incline.

**Estimated Project Benefits:** Fish passage improvement at this site will remove the last significant fish passage barrier on Stenner Creek and will open high quality salmonid spawning and rearing habit in the upper watershed.

**Estimated Project Cost: \$3,500**

#### **D. PROJECT MONITORING**

Detailed work plans will be developed for each of the projects approved by the Trustee Council for implementation. Each work plan will include costs, implementation schedule, and evaluation criteria. Each project will include a monitoring component for the purposes of documenting restoration effectiveness. Completed projects will be evaluated using performance criteria that will be established for each project. Each monitoring component will assess structural, functional, and temporal factors related to the restoration project. Specific factors that will be outlined in all monitoring plans include the duration and frequency of monitoring, methods of data collection, the level of sampling that will be necessary to detect project success, and prescribed corrective actions to be implemented if project success is not being attained. Evaluation criteria selected for each project will reflect the goals of the project. A project monitoring component has been included in each project proposed by the LCSLOC, and additional money for monitoring is available, if needed, from the interest earned in the Trust Fund. Additionally, \$200,000 was allocated in the State Settlement Agreement and Federal Court Consent Decree for planning, project oversight, and monitoring by Agency personnel.

##### **1. Structural Monitoring**

Structural monitoring will be undertaken to assess site and project maintenance issues. These procedures will determine if plants and structures introduced during project implementation are meeting performance criteria for success and if corrective actions are necessary. The structural monitoring schedule will reflect the importance of having a properly installed project in order to attain functional success and will be specific to the restoration features. Total structural monitoring duration will be three to five years.

##### **2. Functional Monitoring**

The functional monitoring component will assess the degree to which the project meets restoration goals. The functional monitoring schedule will consist of annual evaluation, as restoration projects typically take several years to produce measurable functional results.

## **VI. MANAGEMENT AND OVERSIGHT**

This plan is managed by the Avila Beach Trustee Council, made up of representatives from the California Department of Fish and Game's Office of Spill Prevention and Response (OSPR) unit and representatives from the United States Fish and Wildlife Service. The Trustee Council is responsible for approving all projects, awarding construction bids, and paying invoices under this plan. The Trustee Council will also oversee the activities of the local project manager.

The Trustee Council has selected the Land Conservancy of San Luis Obispo County as the local project manager for implementation of the final approved plan. The Land Conservancy was chosen based on their extensive experience with restoration project implementation, their role in community organization and public outreach, and their role in coordinating watershed based programs.

The Conservancy will be responsible for coordinating public input on selected projects, prepare project bidding documents, provide design review, coordinate implementation of restoration projects with contractors, and ensure adequate monitoring of the projects once installed.

### **Land Conservancy Qualifications:**

The Land Conservancy of San Luis Obispo County is a private, 501 (c)(3), non-profit organization with a mission to protect open space lands and lands containing sensitive resources. These goals are achieved by acquiring conservation easements and fee title to land, developing grass roots support for conservation efforts, and by working cooperatively with government agencies. The Conservancy manages grants from public and private sources for environmental restoration projects and performs consulting services relating to open space planning, Geographic Information Systems (GIS), mitigation planning and monitoring, and habitat conservation planning. Contract and grant clients have included the Regional Water Quality Control Board, California Coastal Conservancy, the City and County of San Luis Obispo, Caltrans, U.S. Fish and Wildlife Service (Partners in Wildlife Program), and the California Department of Fish & Game. Listed below are sample projects and programs, publications, and staff qualifications for the Land Conservancy.

### Projects and programs:

- Coordination of the San Luis Obispo Creek Watershed Task Force.
- Implementation of a watershed enhancement program under contract with the Regional Water Quality Control Board (319 (h) grant).
- Implementation of numerous restoration projects in riparian, oak woodland, and dune habitats throughout San Luis Obispo County.

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- Coordination of a volunteer based water quality monitoring program for the San Luis Obispo Creek watershed.
- Co-sponsor of “San Luis Obispo Creek Day”, an annual educational fair and creek clean-up event.
- Stenciling of storm drains with a “No Dumping” message within San Luis Obispo.
- Development of televised public service announcements with watershed enhancement messages.
- Landowner surveys and contact for the City of San Luis Obispo Greenbelt Program.

Publications:

- San Luis Obispo Creek Restoration Plan, 1988
- San Luis Obispo Creek Watershed Hydrologic Survey, 1995
- San Luis Obispo Creek Steelhead Trout Habitat Inventory & Investigation, 1995
- Black Lake Canyon Enhancement Plan, 1992
- Black Lake Canyon Soil Erosion and Sedimentation Plan, 1995
- Saving Special Places: A Study of Resource Values in the San Luis Obispo Greenbelt Area, 1994
- Rural Development Pattern Strategy Reports phases 1 through 4
- Baywood / Los Osos Conservation Plan, 1998

Staff:

Raymond K. Belknap, Executive Director

M. A. Landscape Architecture - Harvard University, Cambridge, MA.

Duties: Organizational management, project management, conservation easements, open space planning, budgets, and landowner relations.

Brian B. Stark, Deputy Director

B. S. Social Sciences, 1989 - California Polytechnic State University, San Luis Obispo.

M.A. Geography, 1993 - California State University, Chico.

Duties: Project management and oversight, watershed planning, GIS applications, and coordination of the San Luis Obispo Creek Watershed Task Force.

Mark K. Skinner, Stewardship Director

B.S. Landscape Architecture, 1984 - California Polytechnic State University, San Luis Obispo.

Duties: On-site project implementation / management.

Susan Bernstein, Biologist

B. S. Biology, 1995 - California Polytechnic State University, San Luis Obispo.  
M.S. Biology, 1998 - California Polytechnic State University, San Luis Obispo.  
Duties: Biological surveys and reporting.

Christopher J. Rose, Hydrology

B. A. Humanities, 1982 - University of Wisconsin  
M.S. Agriculture / Hydrology / Watershed management - California Polytechnic State University, San Luis Obispo.  
Engineering course work, 1993-1994 - University of Oregon  
Duties: Review of project designs, site surveys, and engineering calculations.

## **VII. PROJECT IMPLEMENTATION SCHEDULE AND BUDGETS**

### ***A. IMPLEMENTATION SCHEDULE***

Implementation of restoration projects will begin over a period of approximately three years and be followed by a monitoring period of at least three to five years. Projects not requiring permits will be implemented immediately, while projects requiring additional hydrologic analysis, engineering work, and agency permits will be implemented as the preliminary work is completed. An implementation schedule and specific performance criteria will be developed for each of the projects approved by the Trustee Council.

### ***B. BUDGET***

The State Settlement Agreement and Federal Consent Decree required Unocal to deposit \$950,000 into an interest bearing trust account with the National Fish and Wildlife Foundation to be managed by the CDFG. The State Settlement Agreement and Federal Consent Decree further allocated \$425,000 for Riparian Corridor Revegetation, \$250,000 for Fish Barrier Removal, and \$275,000 for Estuarine Habitat Improvement. However, the \$275,000 for Estuarine Habitat Improvement has been temporarily set aside. This is primarily due to the ongoing contaminant cleanup in the vicinity of Avila Beach and the estuary as a result of the Avila Beach Restoration Project and the probable disturbance to the estuarine habitat as a result of these cleanup activities. Additionally, the Trustee Council wants to coordinate all restoration projects within the estuary that may be funded by settlement dollars obtained from Unocal for impacts caused by the releases of oil and remediation at Avila Beach. There were other problems associated with the project concepts proposed for the estuary that are described in Appendix B1.

The Trustee Council has identified six projects for riparian corridor revegetation that total \$314,500; ten projects for fish barrier removal that total \$243,600; and no projects for estuarine habitat restoration. The Trustee Council has temporarily set aside \$275,000 for other projects that may be identified in the future that meet the Trustee Council's restoration goals as specified in the State Settlement Agreement and Federal Consent Decree and that

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meet the criteria used to evaluate restoration project concepts. The remaining \$116,900 is allocated to a project maintenance and repair fund. The Trustee Council has the option of modifying the budget to assure the successful completion of the restoration.

**Table 3. Project Budget Allocations**

<b>BUDGET ITEM</b>	<b>GENERAL ALLOCATON</b>
Riparian Corridor Revegetation	\$314,500
Fish Barrier Removal	\$243,600
Project Maintenance and Repair	\$116,900
Estuarine Habitat Restoration (reserve)	\$275,000
<b>Total</b>	<b>\$950,000</b>



## REFERENCES

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- California Department of Fish and Game. 1996 Steelhead Restoration and Management Plan for California.
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