

**DWR WAREHOUSE**  
**EXECUTIVE SUMMARY**

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**NORTHERN CALIFORNIA STREAMS**  
**LOWER SACRAMENTO RIVER RIPARIAN REVEGETATION STUDY**

**Applicant: Department of Water Resources**

The Department of Water Resources and The Reclamation Board are participating in the U.S. Army Corps of Engineers' Lower Sacramento River Riparian Revegetation Study. This project will examine and make recommendations to Congress for restoration of shaded riverine aquatic habitat (SRA) along portions of the 88 miles of the Sacramento River from Collinsville to Verona, and Sutter and Steamboat Sloughs. The project also includes funds to install riparian and shaded riverine aquatic habitat (SRA) in demonstration projects along the reaches of river and sloughs.

Category III funds were granted to fund the local sponsor's share of Phase 1, the first year of this three-year study. Phase 1 includes evaluation of potential planting sites, beginning the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA), site evaluation, and mapping processes, and project management. The total cost for Phase 1 was \$1 million; the Category III provided \$500,000. With this application, funds are being requested to provide matching ("local sponsor") funds for Phase 2, the second and third years of the three-year feasibility study. Phase 2 will include further evaluation of candidate sites, design refinements, detailed cost estimates, modeling, appraisals, and environmental compliance, as well as a demonstration project along parts of the river to evaluate Corps and Reclamation Board policies on planting vegetation on levees, revetment, and in floodways. The evaluation will include impacts of vegetation on river hydraulics, levee structure, and levee maintenance. Once the feasibility study, cost estimates, design, and environmental compliance documents are complete, the report will be submitted to Congress for authorization and funding the recommended alternatives.

DWR is requesting \$849,000 to participate as local sponsor in Phase 2 of the Corps' feasibility study and an additional \$500,000 to complete and monitor additional demonstration projects. These demonstration projects will use nonstructural restorations of riparian and shaded riverine aquatic habitat. This habitat will benefit winter-run salmon, spring-run salmon, delta smelt, splittail, striped bass, steelhead trout, and migratory birds.

DWR has the staff available and trained to administer projects of this type. The Central District staff is experienced in undertaking and overseeing levee repair and habitat development projects. The Corps of Engineers has constructed civil works projects for over 100 years. Although the Corps has been involved in restoring the environment for over 35 years, in the last 10 years, environmental restoration has been one of the Corps' three primary missions. The Sacramento District of the Corps has planned and constructed numerous environmental efforts, including Yolo Basin Wetlands, Cache Slough-Yolo Bypass, Donlon and Venice Cut Islands, and numerous mitigation sites along the Sacramento and Feather Rivers, and is currently working on Prospect Island, Murphy Slough, and San Lorenzo Creek environmental restoration projects. The

**Corps is currently working on two projects funded in part by Category III.**

**The project as proposed is consistent with DWR and CALFED goals to restore riparian habitat and shaded riverine aquatic habitat in the Delta.**

**NORTHERN CALIFORNIA STREAMS  
LOWER SACRAMENTO RIVER RIPARIAN REVEGETATION STUDY**

**Applicant:**

**WARD TABOR, Acting General Manager, The Reclamation Board  
1416 9th Street, Room 1148, Sacramento, CA 95814  
(916) 653-5434**

**The Reclamation Board is a state agency, Tax Identification Number 52-1692634.**

**Technical and Financial Contact Person:**

**EVELYN TIPTON, Project Manager, Department of Water Resources  
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(916) 227-7577, fax 227-7600, e-mail evelyn@water.ca.gov**

**Co-Sponsor:**

**US ARMY CORPS OF ENGINEERS,  
Project Manager - LESLIE LEW, Planning Division  
1325 J Street, Sacramento, CA 95814-2922  
(916) 557-6929, FAX (916) 557-7856.**

**RFP Project Group Type: Other Services (Technical Report, Nonstructural Habitat Restoration)**

## PROJECT DESCRIPTION

### a. Project Description and Approach

The Department of Water Resources and The Reclamation Board intend to participate in the U.S. Army Corps of Engineers' Lower Sacramento River Riparian Revegetation Study. This project will examine and make recommendations to Congress for restoration of shaded riverine aquatic habitat (SRA) along portions of the 88 miles of the Sacramento River from Collinsville to Verona, and Sutter and Steamboat Sloughs. The project also includes funds to install riparian and shaded riverine aquatic habitat (SRA) in demonstration projects along the reaches of river and sloughs.

Category III funds were granted to fund Phase 1, the first year of this three-year study. Phase 1 includes evaluation of potential planting sites, beginning the NEPA/CEQA, site evaluation, and mapping processes, and project management. With this application, funds are being requested to provide matching ("local sponsor") funds for Phase 2, the second and third years of the three-year feasibility study. Phase 2 will include further evaluation of candidate sites, design refinements, detailed cost estimates, hydraulic modeling, appraisals, and environmental compliance, as well as demonstration projects along parts of the river to evaluate Corps and Reclamation Board policies on planting vegetation on levees and in floodways. The evaluation will include impacts of vegetation on river hydraulics, levee structure, and levee maintenance.

### b. Location of Project

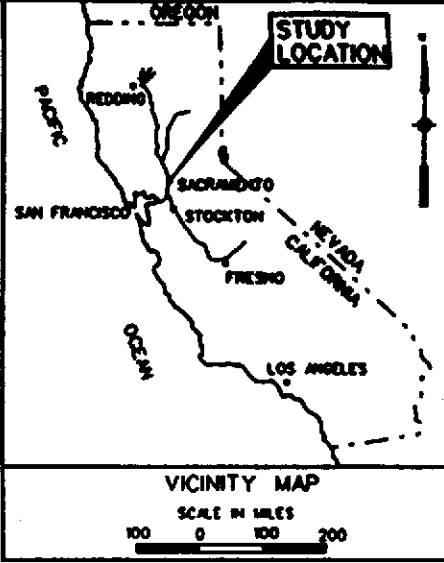
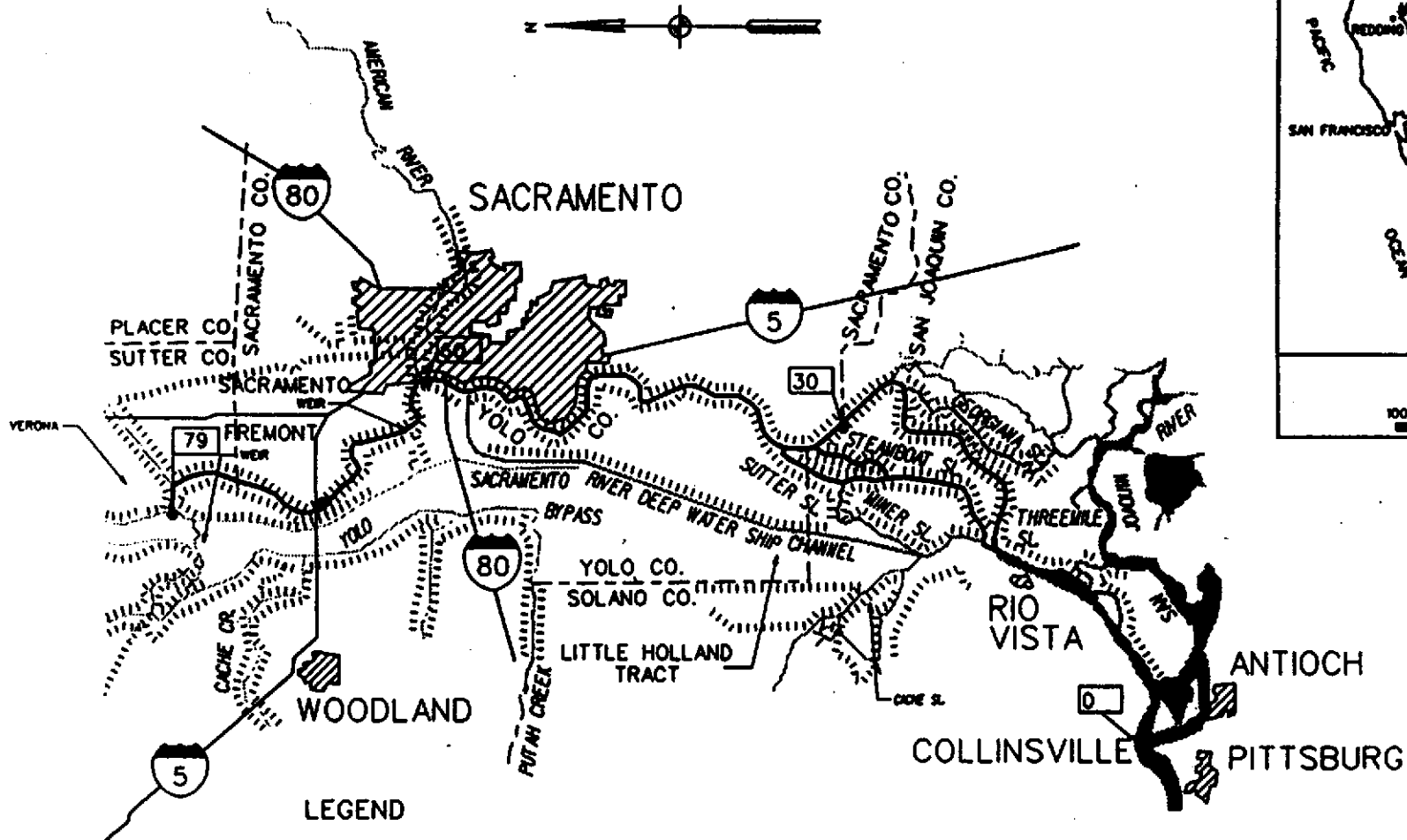
The study will cover the Lower Sacramento River from Collinsville to Verona and Sutter and Steamboat Sloughs. The locations of the demonstration project and potential planting sites along the river will be determined when the preliminary site evaluation is completed. See the site map, Figure 1.

### c. Expected Benefits

Planting SRA and riparian vegetation along the river and sloughs in bare and possibly revetted areas would increase the extent of vegetation available for fish and wildlife in the study area. Vegetation restoration would provide shade, cover, habitat, water temperature modulation, and nutrient input required for both healthy anadromous and resident fish. Species expected to benefit from the project include fall-run salmon, spring-run salmon, winter-run salmon, delta smelt, splittail, steelhead, striped bass, migratory birds, and raptors.

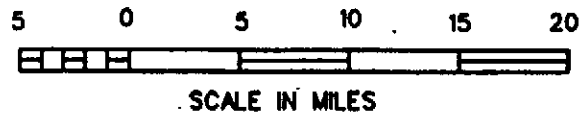
### d. Background and Biological/Technical Justification

The Corps completed a reconnaissance report on Northern California Streams, Sacramento River Fish Migration in April 1995. The reconnaissance report determined there is a federal interest in entering into detailed feasibility-level studies for restoration of shaded riverine aquatic and riparian vegetation along the water courses in the study area (Sacramento River and Sutter and Steamboat Sloughs).



**LEGEND**

- LEVEE SYSTEM AS CONSTRUCTED BY THE CORPS OF ENGINEERS
- 30 RIVER MILES
- DENOTES STUDY AREA (SACRAMENTO RIVER BETWEEN COLLINSVILLE AND VERONA, AND STEAMBOAT AND SUTTER SLOUGHS).



**GENERAL INVESTIGATIONS**  
**SURVEYS-WATERSHED/ECOSYSTEMS**  
**NORTHERN CALIFORNIA STREAMS**  
**LOWER SACRAMENTO RIVER**  
**RIPARIAN REVEGETATION**  
**CALIFORNIA**

SOUTH PACIFIC DIVISION  
 SACRAMENTO DISTRICT, CORPS OF ENGINEERS

Figure 1

Approximately 30 miles of the Sacramento River and Steamboat and Sutter Sloughs have been identified in the study area that may be suitable sites for planting with shaded riparian aquatic species. The Corps and The Reclamation Board both have regulations regarding planting vegetation on levees. Close coordination will be required between the Corps, the Reclamation Board, and the many reclamation districts within the study area in order to arrive at a consensus regarding planting in revetment. Potential sites would be evaluated to ensure that vegetation restoration will not compromise the flood control carrying capacity of the system, the safety of the levees, or the integrity of bank stabilization. Evaluation methods include hydraulic modeling and soil sampling. Potential restoration may include planting low-lying grasses and other vegetation (with or without fiber mats to capture sediment), construction of low berms, or construction of overhangs along the water's edge.

e. **Proposed Scope of Work**

During Phase 2, design refinements, detailed cost estimates, modeling, appraisals, and environmental compliance will be accomplished. Candidate sites will be evaluated in more detail for elimination from further consideration or to be carried forward for more detailed design.

Hydraulic modeling efforts will continue to be completed through Phase II. Preproject and project impacts will be evaluated. The modeling and analysis will be compiled into a hydrology and hydraulics report.

Soils explorations and laboratory work will be continued from Phase 1. Berm designs will be developed. Designs will be evaluated to ensure there are no adverse impacts to the structural integrity of the levee. Backfill material, if required, also will be examined.

Technical, project, and study management will be ongoing throughout Phase 2. These tasks are similar to those in Phase 1, including making decisions as to whether the Corps and the Reclamation Board standards regarding planting near or on levees can be relaxed. Meetings will be held between the Corps and Reclamation Board to determine if flexibility in the standards is an achievable goal. The Corps and Local Sponsor will provide overall management of technical aspects of the project and coordination with participating agencies and regulatory agencies. The Corps and sponsor are responsible for implementing the Project Study plan and updating it, if necessary. The Corps will coordinate with the local sponsor to ensure the work is agreeable to the sponsor. The sponsor will coordinate with the Category III. The Corps will coordinate with other agencies to solicit their input into the process. The Corps will identify and confirm key personnel within the regulatory agencies having jurisdiction on elements of this study. This identification will include the National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (Service), and the California Department of Fish and Game (DFG).

Designs and costs will continue through Phase 2. Feasibility level designs and costs will be developed. The basis of design will document design criteria and solutions and will include the construction schedule and O&M manual. Final cost estimates will be completed.

A demonstration project will be undertaken during the second phase. The demonstration

project will be undertaken to evaluate Corps and Reclamation Board policies on planting vegetation on levees and in floodways. The demonstration project will be designed and constructed during Phase 2.

The information gathered, plans formulated, and designs and costs developed will be described in a feasibility report that will be prepared during Phase 2. The feasibility report and environmental documentation will include detailed analysis and alternative plans and recommendations.

The financial plan will be developed.

Hazardous, toxic, and radiological waste (HTRW) and cultural sites will be identified and addressed.

Real estate materials will be developed further during Phase 2. The gross appraisal, real estate plan, cost estimates, maps, and feasibility plan real estate supplement will be completed. Rights of entry will be obtained. All other real estate work necessary for the project will be completed.

Public Scoping will continue during Phase 2. Coordination with other agencies, organizations, and individuals will be ongoing. It is likely that a public meeting will be involved for NEPA compliance.

NEPA, California Environmental Quality Act (CEQA), Habitat Evaluation Procedure (HEP), and Endangered Species Act (ESA) documentation will be completed during Phase 2. The resulting documents will be an Environmental Assessment (EA) or Environmental Impact Statement/Report (EIS/EIR) and a biological opinion. The incremental analysis also will be completed during Phase 2 so that the most cost effective means of restoration can be identified. All environmental documentation will be completed.

At the end of Phase 2, the final feasibility study will be used as a basis for the federal authorization and funding by Congress.

f. **Monitoring and Data Evaluation**

Once the demonstration project is constructed, it will be monitored periodically for the duration of Phase 2. Additional funds requested from Category III will be used to set up a three-year monitoring system. It is expected that the sites included in the demonstration project will be added to other sites being monitored by DWR staff, so that the sites can be monitored long-term.

Fish, wildlife, and riparian vegetation growth will be monitored. The monitoring plan will be coordinated with DFG, USF&WS, NMFS, and other interested parties. Both the physical and biological aspects of the project will be monitored and evaluated.

The biological monitoring elements will include vegetation identification, distribution, and

quality; plant species richness; threatened or endangered plant species; non-native, exotic pest plant species; verification of target plant communities; wildlife use; threatened or endangered wildlife species; and distribution of shallow water and emergent marsh habitat.

**g. Implementability**

The sites chosen along the Sacramento River and Sutter and Steamboat Sloughs will include those along existing levees. The local reclamation districts overseeing those areas will be involved in the project, as well as the appropriate regulatory agencies. Each site will be evaluated as described above during the feasibility study. The cost of the demonstration sites will come from the Category III funds; the other construction funds will need to be authorized by Congress once the study is complete. The feasibility study will serve as a basis for riparian habitat restoration along the studied stretch of river and sloughs.

The work plan for the study includes completing all required environmental documentation and conducting public workshops and hearings.

**IV. Costs and Schedule to Implement Proposed Project**

**a. Budget Costs -**

The total cost of Phase 2 of the Revegetation Study is expected to be \$1,698,000. One half of the cost will be paid by the federal government through the Corps and the other half through Category III funds, as follows:

<b>LOWER SACRAMENTO RIVER RIPARIAN REVEGETATION PROJECT COST BREAKDOWN</b>				
<b>Project Phase &amp; Tasks</b>	<b>Direct Salary &amp; Benefits</b>	<b>Technical And Other Direct Costs</b>	<b>Overhead Labor (General Admin &amp; Fee)</b>	<b>Total Costs</b>
<b>Corps - Federal Funding</b>	<b>\$538,000</b>	<b>\$175,000</b>	<b>\$136,000</b>	<b>\$849,000</b>
<b>Corps - Category III Funding</b>	<b>\$210,000</b>	<b>\$175,000</b>	<b>\$103,000</b>	<b>\$488,000</b>
<b>DWR/Reclamation Board - Category III Funding</b>	<b>\$328,000</b>	<b>\$0</b>	<b>\$33,000</b>	<b>\$361,000</b>
<b>Total Category III</b>	<b>\$538,000</b>	<b>\$175,000</b>	<b>\$136,000</b>	<b>\$849,000</b>

These feasibility study funds include about \$215,000 for permit acquisition, design, and construction of a demonstration project. DWR is requesting an additional \$500,000 of Category III funds for additional construction and monitoring of the demonstration project, as follows:

<b>DWR DEMONSTRATION PROJECT COST BREAKDOWN</b>					
<b>Project Phase &amp; Tasks</b>	<b>Direct Salary &amp; Benefits</b>	<b>Overhead Labor (General Admin &amp; Fee)</b>	<b>Service Contracts</b>	<b>Material and Acquisition Contracts</b>	<b>Total Costs</b>
<b>Design</b>	<b>\$45,000</b>	<b>\$5,000</b>			<b>\$50,000</b>
<b>Construction</b>			<b>\$300,000</b>	<b>\$65,000</b>	<b>\$365,000</b>
<b>Monitoring</b>	<b>\$77,000</b>	<b>\$8,000</b>			<b>\$85,000</b>
<b>Total</b>	<b>\$122,000</b>	<b>\$13,000</b>	<b>\$300,000</b>	<b>\$65,000</b>	<b>\$500,000</b>

b. Schedule Milestones

<u>MILESTONE/ACTIVITY</u>	<u>DURATION</u> (Months)	<u>TOTAL</u>	<u>DATE</u>
F1 Initiate Feasibility Study*	0.0	0.0	August 1, 97
Quality Control Plan Meeting*	0.5	0.5	August 20, 97
F2 Public Workshop*	1.5	2.0	October 7, 97
F3 Review Conference #1*	8.0	10.0	June 1, 98
F4 Review Conference #2 (Alternative Formulation Briefing)	10.0	20.0	April 1, 99
F5 Draft Report to Division & F6 Field Level Coordination	5.0	25.0	September 1, 99
F5a Feasibility Review Conference	1.0	26.0	October 1, 99
F7 Final Public Meeting	1.0	27.0	November 1, 99
F8 Final Report to Division	2.0	29.0	January 2, 00
F9 Corps' Division Engineer Public Notice	1.0	30.0	February 2, 00

\* Phase 1 Activities

**c. Third Party Impacts**

All third party impacts will be evaluated during the feasibility study and mitigated to the extent possible. All local participation in the demonstration projects will be voluntary. If consensus with the local landowners and reclamation boards is not forthcoming, other sites will be chosen.

**V. Applicant Qualifications**

DWR and The Reclamation Board, in conjunction with the Corps of Engineers, are the lead agencies for all phases of the project. The Corps of Engineers has constructed civil works projects for over 100 years. Although the Corps has been involved in restoring the environment for over 35 years, in the last 10 years, environmental restoration has been one of the Corps' three primary missions. The Sacramento District of the Corps has planned and constructed numerous environmental efforts, including Yolo Basin Wetlands, Cache Slough-Yolo Bypass, Donlon and Venice Cut Islands, and numerous mitigation sites along the Sacramento and Feather Rivers, and is currently working on Prospect Island, Murphy Slough, and San Lorenzo Creek. The Corps is currently working on two projects funded in part by Category III.

Leslie Lew, the Corps study manager for this project, has been an environmental planner for the past 10 years and has worked on mitigation and restoration sites in numerous California locations, including the Kings, Feather, and Sacramento Rivers, Tulare Basin, Prospect Island, and Liberty Island.

Evelyn Tipton, Senior Engineer, is the project manager for DWR, working in association with The Reclamation Board. In over twenty years with the State of California, she was a project coordinator for numerous Clean Water Grant projects with the State Water Resources Control Board, helped develop the State Board's Pretreatment Program in conjunction with EPA, and has been heavily involved in feasibility studies with DWR's Division of Planning.

**VI. Compliance with standard terms and conditions**

DWR is able to comply with the Terms and Conditions of the Category III Proposal, as laid out in Appendix D of the Request for Proposals.