

Suisun Creek Restoration Program

Project Information

1. Proposal Title:

Suisun Creek Restoration Program

2. Proposal applicants:

John Beuttler, California Sportfishing Protection Alliance
Laurel Marcus, Representative for Suisun Creek for the California Sportfishing Protection Alliance

3. Corresponding Contact Person:

Laurel Marcus
Representative for Suisun Creek for the California Sportfishing Protection Alliance
3661 Grand Ave. Suite #204 Oakland, CA 94610
510 832-3101
laurelm@ix.netcom.com

4. Project Keywords:

At-risk species, fish
Riparian Ecology
Wildlife-friendly Agriculture

5. Type of project:

Implementation_Pilot

6. Does the project involve land acquisition, either in fee or through a conservation easement?

No

7. Topic Area:

Riparian Habitat

8. Type of applicant:

Private non-profit

9. Location - GIS coordinates:

Latitude: 38.111

Longitude: -122.09

Datum: NAD27

Describe project location using information such as water bodies, river miles, road intersections, landmarks, and size in acres.

Suisun Creek run north south from above Lake Curry and empties into the Suisun Marsh. Wooden Valley Creek is the major tributary of Suisun Creek. Suisun Creek watershed is 53 square miles.

10. Location - Ecozone:

2.1 Suisun Bay & Marsh

11. Location - County:

Napa, Solano

12. Location - City:

Does your project fall within a city jurisdiction?

No

13. Location - Tribal Lands:

Does your project fall on or adjacent to tribal lands?

No

14. Location - Congressional District:

1st and 7th

15. Location:

California State Senate District Number: 2, 4

California Assembly District Number: 8

16. How many years of funding are you requesting?

3

17. Requested Funds:

a) Are your overhead rates different depending on whether funds are state or federal?

No

If no, list single overhead rate and total requested funds:

Single Overhead Rate: 14

Total Requested Funds: \$44,190

b) Do you have cost share partners already identified?

Yes

If yes, list partners and amount contributed by each:

California State Coastal Conservancy \$150,000

City of Vallejo \$50,000

c) Do you have potential cost share partners?

No

d) Are you specifically seeking non-federal cost share funds through this solicitation?

No

If the total non-federal cost share funds requested above does not match the total state funds requested in 17a, please explain the difference:

18. Is this proposal for next-phase funding of an ongoing project funded by CALFED?

No

Have you previously received funding from CALFED for other projects not listed above?

No

19. Is this proposal for next-phase funding of an ongoing project funded by CVPIA?

No

Have you previously received funding from CVPIA for other projects not listed above?

No

20. Is this proposal for next-phase funding of an ongoing project funded by an entity other than CALFED or CVPIA?

No

Please list suggested reviewers for your proposal. (optional)

21. **Comments:**

Environmental Compliance Checklist

Suisun Creek Restoration Program

1. CEQA or NEPA Compliance

- a) Will this project require compliance with CEQA?

Yes

- b) Will this project require compliance with NEPA?

No

- c) If neither CEQA or NEPA compliance is required, please explain why compliance is not required for the actions in this proposal.

NEPA compliance is only needed if federal funding is part of this proposal, since no federal permits are required.

2. If the project will require CEQA and/or NEPA compliance, identify the lead agency(ies). If not applicable, put "None".

CEQA Lead Agency: California Department of Fish and Game

NEPA Lead Agency (or co-lead:) Not applicable

NEPA Co-Lead Agency (if applicable):

3. Please check which type of CEQA/NEPA documentation is anticipated.

CEQA

-Categorical Exemption

☒ Negative Declaration or Mitigated Negative Declaration

-EIR

-none

NEPA

-Categorical Exclusion

-Environmental Assessment/FONSI

-EIS

☒ none

If you anticipate relying on either the Categorical Exemption or Categorical Exclusion for this project, please specifically identify the exemption and/or exclusion that you believe covers this project.

4. CEQA/NEPA Process

- a) Is the CEQA/NEPA process complete?

No

If the CEQA/NEPA process is not complete, please describe the dates for completing draft and/or final CEQA/NEPA documents.

The pilot projects described in Task 4 will require CEQA compliance which will occur in the first year of the proposal.

b) If the CEQA/NEPA document has been completed, please list document name(s):

5. **Environmental Permitting and Approvals** (*If a permit is not required, leave both Required? and Obtained? check boxes blank.*)

LOCAL PERMITS AND APPROVALS

Conditional use permit

Variance

Subdivision Map Act

Grading Permit

General Plan Amendment

Specific Plan Approval

Rezone

Williamson Act Contract Cancellation

Other

STATE PERMITS AND APPROVALS

Scientific Collecting Permit

CESA Compliance: 2081

CESA Compliance: NCCP

1601/03 Required

CWA 401 certification

Coastal Development Permit

Reclamation Board Approval

Notification of DPC or BCDC

Other

FEDERAL PERMITS AND APPROVALS

ESA Compliance Section 7 Consultation

ESA Compliance Section 10 Permit

Rivers and Harbors Act

CWA 404

Other

PERMISSION TO ACCESS PROPERTY

Permission to access city, county or other local agency land.

Agency Name: City of Vallejo

Required, Obtained

Permission to access state land.

Agency Name:

Permission to access federal land.

Agency Name:

Permission to access private land.

Landowner Name: Dan & Marguerite Capp, William & Roxanne Wolf

Required, Obtained

6. Comments.

Land Use Checklist

Suisun Creek Restoration Program

1. **Does the project involve land acquisition, either in fee or through a conservation easement?**

No

2. **Will the applicant require access across public or private property that the applicant does not own to accomplish the activities in the proposal?**

Yes

3. **Do the actions in the proposal involve physical changes in the land use?**

No

If you answered no to #3, explain what type of actions are involved in the proposal (i.e., research only, planning only).

Proposal involves studies and pilot projects to revegetate existing riparian corridors with native plants. No change in land use is involved.

4. **Comments.**

Conflict of Interest Checklist

Suisun Creek Restoration Program

Please list below the full names and organizations of all individuals in the following categories:

- Applicants listed in the proposal who wrote the proposal, will be performing the tasks listed in the proposal or who will benefit financially if the proposal is funded.
- Subcontractors listed in the proposal who will perform some tasks listed in the proposal and will benefit financially if the proposal is funded.
- Individuals not listed in the proposal who helped with proposal development, for example by reviewing drafts, or by providing critical suggestions or ideas contained within the proposal.

The information provided on this form will be used to select appropriate and unbiased reviewers for your proposal.

Applicant(s):

John Beuttler, California Sportfishing Protection Alliance

Laurel Marcus, Representative for Suisun Creek for the California Sportfishing Protection Alliance

Subcontractor(s):

Are specific subcontractors identified in this proposal? Yes

If yes, please list the name(s) and organization(s):

Laurel Marcus Laurel Marcus & Associates

Karen Gaffney Circuit Rider Productions

Tom Burke Hydrologic Systems

Dennis Jackson Dennis Jackson

Helped with proposal development:

Are there persons who helped with proposal development?

Yes

If yes, please list the name(s) and organization(s):

Laurel Marcus Laurel Marcus & Associates

Karen Gaffney Circuit Rider Productions

Tom Burke Hydrologic Systems

Dennis Jackson Dennis Jackson

Comments:

Budget Summary

Suisun Creek Restoration Program

Please provide a detailed budget for each year of requested funds, indicating on the form whether the indirect costs are based on the Federal overhead rate, State overhead rate, or are independent of fund source.

Independent of Fund Source

| Year 1 | | | | | | | | | | | | |
|----------|---|--------------------|-------------------|---------------------|--------|------------------------|-------------------------|-----------|--------------------|--------------------|----------------|------------|
| Task No. | Task Description | Direct Labor Hours | Salary (per year) | Benefits (per year) | Travel | Supplies & Expendables | Services or Consultants | Equipment | Other Direct Costs | Total Direct Costs | Indirect Costs | Total Cost |
| 1 | Monitoring of the Creek System | | | | | | 43,200.00 | 2,500.00 | 174.00 | 45874.0 | | 45874.00 |
| 2 | Lake Curry Studies | | | | | | 40,375.00 | 260.00 | 991.00 | 41626.0 | | 41626.00 |
| 3 | Arundo donax Eradication | | | | | | 10,000.00 | | 5,000.00 | 15000.0 | | 15000.00 |
| 4 | Pilot Invasive Understory Plant Removal and Native Riparian Revegetation Projects | | | | | | 30,000.00 | | 1,000.00 | 31000.0 | | 31000.00 |
| 5 | Erosion Control and Reduction of Fine Sediment in Creeks | | | | | | 3,400.00 | | 200.00 | 3600.0 | | 3600.00 |
| 6 | Community and Landowner Involvement | 120 | 3888.00 | 240.00 | 330.00 | | 9600.00 | | 630.00 | 14688.0 | 912.00 | 15600.00 |
| 7 | Project Management | 240 | 7098.00 | 480.00 | | | 5760.00 | | | 13338.0 | 1782.00 | 15120.00 |
| | | 360 | 10986.00 | 720.00 | 330.00 | 0.00 | 142335.00 | 2760.00 | 7995.00 | 165126.00 | 2694.00 | 167820.00 |

| Year 2 | | | | | | | | | | | | |
|----------|---|--------------------|-------------------|---------------------|--------|------------------------|-------------------------|-----------|--------------------|--------------------|----------------|------------|
| Task No. | Task Description | Direct Labor Hours | Salary (per year) | Benefits (per year) | Travel | Supplies & Expendables | Services or Consultants | Equipment | Other Direct Costs | Total Direct Costs | Indirect Costs | Total Cost |
| 1 | Monitoring of the Creek System | | | | | | 43,200.00 | 250.00 | 174.00 | 43624.0 | | 43624.00 |
| 2 | Lake Curry Studies | | | | | | | | | 0.0 | | 0.00 |
| 3 | Arundo donax Eradication | | | | | | 8,500.00 | | 450.00 | 8950.0 | | 8950.00 |
| 4 | Pilot Invasive Understory Plant Removal and Native Riparian Revegetation Projects | | | | | | 83,000.00 | | 750.00 | 83750.0 | | 83750.00 |
| 5 | Erosion Control and Reduction of Fine Sediment in Creeks | | | | | | 3,300.00 | | 200.00 | 3500.0 | | 3500.00 |
| 6 | Community and Landowner Involvement | 120 | 3888.00 | 240.00 | 330.00 | | 9600.00 | | 630.00 | 14688.0 | 912.00 | 15600.00 |
| 7 | Project Management | 240 | 7098.00 | 480.00 | | | 5760.00 | | | 13338.0 | 1782.00 | 15120.00 |
| | | 360 | 10986.00 | 720.00 | 330.00 | 0.00 | 153360.00 | 250.00 | 2204.00 | 167850.00 | 2694.00 | 170544.00 |

| Year 3 | | | | | | | | | | | | |
|-----------------|---|---------------------------|--------------------------|----------------------------|---------------|-----------------------------------|--------------------------------|------------------|---------------------------|---------------------------|-----------------------|-------------------|
| Task No. | Task Description | Direct Labor Hours | Salary (per year) | Benefits (per year) | Travel | Supplies & Expendables | Services or Consultants | Equipment | Other Direct Costs | Total Direct Costs | Indirect Costs | Total Cost |
| 1 | Monitoring of the Creek System | | | | | | 43,200.00 | 250.00 | 174.00 | 43624.0 | | 43624.00 |
| 2 | Lake Curry Studies | | | | | | | | | 0.0 | | 0.00 |
| 3 | Arundo donax Eradication | | | | | | 8,500.00 | | 450.00 | 8950.0 | | 8950.00 |
| 4 | Pilot Invasive Understory Plant Removal and Native Riparian Revegetation Projects | | | | | | 32,000.00 | | 750.00 | 32750.0 | | 32750.00 |
| 5 | Erosion Control and Reduction of Fine Sediment in Creeks | | | | | | 3,300.00 | | 200 | 3500.0 | | 3500.00 |
| 6 | Community and Landowner Involvement | 120 | 3888.00 | 240.00 | 330.00 | | 9,600.00 | | 640.00 | 14698.0 | 912.00 | 15610.00 |
| 7 | Project Management | 240 | 7098.00 | 480.00 | | | 5,760.00 | | | 13338.0 | 1,782.00 | 15120.00 |
| | | 360 | 10986.00 | 720.00 | 330.00 | 0.00 | 102360.00 | 250.00 | 2214.00 | 116860.00 | 2694.00 | 119554.00 |

Grand Total=457918.00

Comments.

Budget Justification

Suisun Creek Restoration Program

Direct Labor Hours. Provide estimated hours proposed for each individual.

California Sportfishing Protection Alliance John Beuttler Task 6 10 hrs/month or 360 hrs/3 years Task 7 10 hrs/month or 360 hrs/3 years Gary Maganaris Task 7 10 hrs/month or 360 hrs/3 years

Salary. Provide estimated rate of compensation proposed for each individual.

John Beuttler -- \$32.40/hr Gary Maganaris \$26.75/hr

Benefits. Provide the overall benefit rate applicable to each category of employee proposed in the project.

John Beuttler -- \$2/hr Gary Maganaris \$2/hr

Travel. Provide purpose and estimate costs for all non-local travel.

Task 6 10 roundtrips from Oakland to Suisun Creek/year for 3 years 100 miles per roundtrip at 0.33/mile = \$33/trip for 30 trips = \$990

Supplies & Expendables. Indicate separately the amounts proposed for office, laboratory, computing, and field supplies.

None.

Services or Consultants. Identify the specific tasks for which these services would be used. Estimate amount of time required and the hourly or daily rate.

Task 1 Monitoring of the Creek System Dennis Jackson study reach survey: \$3,000/reach/year LMA study reach survey, pebble count, embeddedness and Vstar: \$11,000/reach/year LMA study reach riparian transects: \$3,000/reach/year LMA water quality/water temp monitoring: 10 hrs/month at \$60/hr = \$17,200/year Three study reaches/year, 30 water quality/water temperature stations for three years: TOTAL FOR TASK 1 = \$129,600 ----- Task 2 Lake Curry Studies Hydrologic Systems Tom Burke 208 hours at \$90/hr = \$18,720 Raughley Ann Mastbrook 132 hours at \$75/hr = \$9,900 Graphics Support 32 hours at \$65/hr = \$2,080 Administrative support 40 hours at \$55/hr = \$2,200 Seasurveyor -- \$7,475/bathymetric survey TOTAL FOR TASK 2 = \$40,375 ----- Task 3 Arundo donax Eradication Task 3.1 CRP 167 hours at \$60/hr = \$10,000 Task 3.2 CRP 117 hours at \$60/hr = \$7,000 LMA 125 hours at \$80/hr = \$10,000 TOTAL FOR TASK 3 = \$27,000 ----- Task 4 Pilot Invasive Plant Removal and Revegetation Projects Task 4.1 LMA 30 hours at \$80/hr = \$2,400 Task 4.2 CRP 80 hours at \$60/hr = \$4,800 Task 4.3 LMA 60 hours at \$80/hr = \$4,800 Task 4.4 LMA 450 hours at \$40/hr = \$18,000 Task 4.5 CRP 8 acres at \$6375/acre (includes plants and labor) = \$51,000 Task 4.6 LMA 80 hours at \$80/hr = \$6,400 CRP 60 hours at \$60/hr = \$3,600 Task 4.7 LMA 125 hours at \$80/hr = \$10,000 Task 4.8 CRP 360 hours at \$60/hr = \$36,000 Task 4.9 LMA 200 hours at \$40/hr = \$8,000 TOTAL FOR TASK 4 = \$145,000 ----- Task 5 Erosion Control and Reduction of Fine Sediment in Creeks LMA 125 hours at \$80/hr = \$10,000 TOTAL FOR TASK 5 = \$10,000 ----- Task 6 Community and Landowner Involvement LMA 10 hours/month at \$80/hr (\$9,600/year for 3 years) = \$28,800 TOTAL FOR TASK 6 = \$28,800 ----- Task 7 Project Management Technical Project Management LMA 6

hrs/month at \$80/hr = \$5760/year for 3 years = \$17,280 SERVICE OR CONSULTANTS TOTAL FOR ALL TASKS = \$398,055

Equipment. Identify non-expendable personal property having a useful life of more than one (1) year and an acquisition cost of more than \$5,000 per unit. If fabrication of equipment is proposed, list parts and materials required for each, and show costs separately from the other items.

Task 1 25 Onset temperature monitors at \$80/each = \$2,000 10 CHEMetric water quality kits at \$50/each = \$500 Replacement kits = \$500 TOTAL FOR TASK 1 = \$3,000 Task 2 Field equipment and Laboratory Analysis = \$260 TOTAL FOR TASK 2 = \$260 TOTAL COST OF EQUIPMENT = \$3,260

Project Management. Describe the specific costs associated with insuring accomplishment of a specific project, such as inspection of work in progress, validation of costs, report preparation, giving presentations, response to project specific questions and necessary costs directly associated with specific project oversight.

The technical project management of the project is described as Task 7 in the Services of Consultants and involves 6 hours per month at \$80/hour over the 3 year period for an annual total of \$5760/year or \$17,280 for three years. The work effort is estimated to allow for oversight of field work including the pilot project installation, monitoring, as well as overall management of the study team and integration of scientific information and coordination of study needs with landowner access. The administration project management is detailed in the direct labor hours for CSPA as Task 7 and includes administration of contracts, invoices and preparation of progress reports.

Other Direct Costs. Provide any other direct costs not already covered.

Task 1 Copying of annual summary reports = \$472 Shipping of annual summary reports = \$50 TOTAL FOR TASK 1 = \$522 Task 2 Shipping = \$58 Copying of summary report = \$235 GIS/CAD usage at \$16/hr = \$295 Travel = \$403 TOTAL FOR TASK 2 = \$991 Task 3 Aerial flights, film, travel, orthophoto and base map layers for GIS = \$5,000 Copying of summary report = \$400 Postage = \$500 TOTAL FOR TASK 3 = \$5,900 Task 4 Copying of information, plans and summary report = \$300 Travel = \$1,000 Herbicide = \$700 Postage = \$500 TOTAL FOR TASK 4 = \$2,500 Task 5 Copying = \$500 Travel = \$100 TOTAL FOR TASK 5 = \$600 Task 6 Copying = \$500 Travel \$500 Postage = \$900 TOTAL FOR TASK 6 = \$1900 TOTAL COST OF OTHER DIRECT COSTS = \$12,413

Indirect Costs. Explain what is encompassed in the overhead rate (indirect costs). Overhead should include costs associated with general office requirements such as rent, phones, furniture, general office staff, etc., generally distributed by a predetermined percentage (or surcharge) of specific costs.

California Sportfishing Protection Alliance Payroll taxes John Beuttler -- \$2.60/hr Payroll taxes Gary Maganaris -- \$2.25/hr Office rent, phones, supplies, utilities \$5/hr for John Beuttler and for Gary Maganaris

Executive Summary

Suisun Creek Restoration Program

Suisun Creek drains a watershed of 53 square miles in Napa and Solano Counties into Suisun Marsh. A coalition of local, state and federal agencies, fishing groups, agricultural groups, landowners and community interests have formed the Suisun Creek Restoration Team (SCRT) and have carried out a number of studies of the creek to restore steelhead trout habitat. Suisun Creek and its watershed are mostly in agricultural use and have a mainline municipal water supply reservoir, Lake Curry. The City of Vallejo (owner of Lake Curry) and the California Sportfishing Protection Alliance (CSPA) have been carrying out a number of studies including study reaches and monitoring stations, creek surveys, studies of the reservoir, a watershed assessment and evaluation of the riparian corridor. These studies have found wild steelhead adults and juveniles in Suisun Creek and identified the following limiting factors: limited cold water for release from Lake Curry and a lack of flushing flows in winter, several species of non-native plants in the riparian corridor, excess fine sediment in the creek, need for widespread landowner outreach and participation in restoration activities and continued monitoring of creek conditions. The objectives of this proposal are to complete studies, pilot projects and workshops to address these limiting factors. The proposal will fund: geomorphic, hydrologic, biological and water quality and temperature monitoring, a feasibility study of Lake Curry to provide for both water supply and fish habitat, a mapping and eradication strategy for *Arundo donax* coordinated with creek landowners, two pilot projects covering over one mile of Suisun Creek to remove invasive non-native *Vinca major* and *Rubus discolor* along with revegetation of native plants and workshops for local landowners to encourage wildlife friendly practices, workshops on soil conservation for local farmers to reduce siltation, and continued community and landowner outreach to identify additional projects, improved practices and integrate monitoring results into project priorities. The Suisun Creek Restoration Program will implement a number of CalFed goals including: reducing the negative impacts of non-native species, developing programs for Wildlife Friendly Agriculture, ensure recovery of at-risk species (steelhead trout) and restoring riparian habitats.

Proposal

California Sportfishing Protection Alliance

Suisun Creek Restoration Program

John Beuttler, California Sportfishing Protection Alliance

Laurel Marcus, Representative for Suisun Creek for the California Sportfishing
Protection Alliance

PROJECT DESCRIPTION: PROJECT GOALS AND SCOPE OF WORK

1. PROBLEM STATEMENT

Suisun Creek and its tributaries are located in Napa and Solano Counties and drain into Suisun Marsh and Suisun Bay. Suisun Creek once supported a run of steelhead trout (*Oncorhynchus mykiss*) and a greater area of riparian habitat (Shapovalov 1940, Dept. of Fish and Game 1962). The 53 square mile watershed has been modified in a number of ways:

- Development of a municipal water supply with construction of Lake Curry in 1926
- Development of floodplains along most creeks for intensive agriculture
- Development of some areas along the creek for livestock and grazing
- Development of road systems and rural residential housing and septic system
- Straightening and clearing of creek channels
- Introduction of invasive non-native plant species such as giant reed (*Arundo donax*), blue periwinkle (*Vinca major*) and Himalayan blackberry (*Rubus discolor*)

Despite these changes, recent surveys have found wild steelhead trout in Suisun Creek (Hansen, 2001). Steelhead trout are listed as a federally threatened species and require a suite of environmental conditions – cold, well oxygenated, high quality water, low siltation, lack of migration barriers, good riparian cover and riparian corridors of adequate width to contribute large wood and create complex aquatic habitat. These conditions are highly influenced by a variety of land uses, land management regimes and the operation of reservoirs. To date there have been few scientific studies, stream surveys, or long term monitoring stations in Suisun Creek and therefore a scarcity of information on how these developments have affected habitats. In addition, the watershed of Suisun Creek contains little impervious surface making it a high priority candidate in the San Francisco Bay Area for successful steelhead trout restoration.

Restoration of habitat for steelhead requires the involvement of private landowners, regulatory agencies, the owners of Lake Curry – the City of Vallejo, local government, and fishing groups.

The California Sportfishing Protection Agency (CSPA) is a founding member of a community-based coalition, the Suisun Creek Restoration Team (SCRT). The SCRT formed in 1999 to carry out a broad set of goals for restoring steelhead habitat in Suisun Creek.

Program Goals

- Work cooperatively to enhance the Suisun Creek and its tributaries to protect, enhance and sustain steelhead trout and other native wildlife, improve water quality, protect water supplies and protect and enhance current land uses;
- Provide a process to directly involve landowners, elected officials, fishing groups, government agencies, and local community interests in the study and enhancement of Suisun Creek;
- Respect private property rights by requesting access in writing for studies and working with willing landowners on project implementation;

- The study and enhancement of Suisun Creek represents a proactive approach to create incentives to restore and sustain endangered fish populations and avoid the need for regulatory actions while fulfilling the purpose of regulatory mandates;
- Use the full range of assessment and monitoring techniques to provide a science-based approach to long term resource enhancement and revisions to land and water management practices.

Table 1 Members of the Suisun Creek Restoration Team

| MEMBER | AGENCY |
|-----------------------|---|
| Mark Akaba | City of Vallejo |
| John Beuttler | California Sportfishing Protection Alliance |
| Dan & Marguerite Capp | Suisun Creek Alliance, landowners |
| Bill Cox | California Department of Fish & Game |
| Cheryl Diehm | Congressman Thompson's Office |
| Ex Ganding | City of Vallejo |
| Anthony Grandison | Suisun Creek Watershed resident |
| Kathy Hoffman | Congressman Miller's Office |
| Jim Leddy | Senator Chesbro's Office |
| Melissa Miller | California Trout |
| John Nogue | Solano Community College |
| Roland Sanford | Solano County Water Agency |
| Rob Schroeder | US Bureau of Reclamation |
| Leigh Sharpe | Napa County Resource Conservation District |
| Mary Small | California State Coastal Conservancy |
| Gary Stern | National Marine Fisheries Service |
| Pat Ticher | Suisun Watershed resident |
| Bill Wolf | Napa County Farm Bureau |
| Roxanne Wolf | Suisun Creek Alliance, landowner |

Background Studies

Since its formation, the SCRT has met regularly and has initiated several types of scientific studies.

Lake Curry

Gordon Valley Dam, built by the City of Vallejo in 1926, drains a 17 square mile watershed that previously formed the headwaters of Suisun Creek. It is an earth embankment dam approximately 107 feet high. Lake Curry, the reservoir created by Gordon Valley Dam, has a surface area of 377 acres, and an original design volume of 10,700 acre feet. Given the area and volume, the mean depth is approximately 28 feet, with the original maximum depth likely to be around 100 feet. It is not known if sedimentation from the upper watershed has led to a decrease in the lake volume or depth.

An in-line reservoir typically has several effects on stream flow. The first is the attenuation of peak flows that occur during storm events. The percent reduction of the peak is dependant on the amount of storage in the reservoir, and the operation of the outlet works. For a small reservoir

like Lake Curry, the reduction in peak flow for a frequent event such as the 2-year storm will be much greater than for the 100-year storm.

These frequent peak flow events (generally 2-, to 5-year events) are vital to maintaining the health of a stream. They provide energy to the bottom sediments, which helps to keep the gravel clean. They inundate the low banks, providing vital water necessary to saturate the stream corridor, which is necessary to keep the riparian vegetation healthy. These peak flow events also help to distribute seeds for riparian plants, and remove emergent vegetation that tends to build up in channels that are subjected to persistent low-flow conditions. These recurrent flows also assist in juvenile or fry out-migration.

In summer, surface water in the reservoir experiences elevated temperatures which are typically higher than in the streams that drain to the reservoir. If this heated surface water is subsequently discharged into Suisun Creek, it can raise stream temperatures, low dissolved oxygen levels, and water quality problems.

In 1999, the City of Vallejo hired a fisheries biologist to carry out a qualitative stream survey of Suisun Creek using the California Department of Fish and Game protocols and to characterize several features of in-stream habitat. This study also placed 8 water temperature and 3 dissolved oxygen monitoring devices in Suisun Creek for approximately 12 months. A water release experiment was completed in August of 2000 to evaluate the differences in water temperature along the 8 stations in the creek under a 2, 3 or 7 cfs reservoir release. Additionally temperature profiles were completed at 8 locations in Lake Curry.

The analysis of water temperatures in Lake Curry and Suisun Creek have indicated that the shallow depths of the upstream end of Lake Curry limit the size of the pool of cold water for releases into the creek. The outlet work (which date from 1926) for Lake Curry limit the ability to release cold water for fish and use warmer surface layers for water supply.

Creek and Watershed Studies

CSPA is the lead organization of the SCRT for a number of studies of Suisun Creek and its tributaries. Several study reaches have been established on Suisun Creek and its main tributary, Wooden Valley Creek to serve as long term quantitative monitoring sites for geomorphologic measurements including bankfull channel width, surveyed channel cross sections, bed composition (pebble count and embeddedness), residual pool volume (Vstar), as well as riparian habitat transects, canopy closure, water flow, water temperature and water quality. The use of study reaches and their locations follow watershed monitoring approaches described in Leopold et al. (1994) and Washington Forest Practice Board (1997). Water temperature and quality are being measured at additional sites in the creek system. A qualitative stream survey of Wooden Valley Creek using the Department of Fish and Game protocol will be completed in Spring 2002. These monitoring stations and study reaches provide both short and long term data on creek and watershed conditions to direct restoration efforts.

A Geographic Information System (GIS) is being developed that includes the development of new digitized layers for riparian corridor width, major slope erosion sites, roads, land use and all the locations of data collection sites.

Conclusions and Recommendations

From these studies we have identified a number of limiting factors to steelhead in Suisun Creek and reached the following conclusions and recommendations:

- A feasibility study is needed of potential changes to the operation of Lake Curry to allow for summer cold-water releases and continued water supply and the effects of current winter storage and release features and the potential for changes to improve fish habitats.
- The overview assessment of the riparian corridor has found the occurrence of *Arundo donax* in relatively isolated clumps; signs of the beginnings of a larger infestation. *Arundo* is a member of the grass family and grows in dense clumps up to 25 feet in height. It spreads rapidly through clonal reproduction. *Arundo* has been shown to outcompete many native riparian species and provide little to no wildlife habitat (Bell 1997, Bell 1993). *Arundo* infestations remove the essential functions of native riparian plants to shade the creek and to provide large wood and insects necessary for steelhead survival (Groves et al 1986, Hobbs 1989).
- The overview assessment found two invasive species, *Vinca major* and *Rubus discolor* are widespread in the riparian corridor. It is believed that these invasives cover over native understory and stream bank areas impairing regeneration of native species over time as native tree seeds can not germinate in the thick mat of *Vinca* or blackberry. As the riparian forest grows old and dies, no regeneration occurs and eventually the invasives are all that remain (Gaffney 2001). These two species are also of specific concern to grapegrowers as they harbor Pierce's Disease a threat to grapevines, the primary agricultural crop along Suisun Creek.
- The stream survey of Suisun Creek has found high levels of fine sediment. A winter field assessment of the creek floodplain has shown a need for improved soil conservation on farmland.

Objectives

All of our objectives fulfill our goals to restore steelhead trout habitat, work with local landowners and the community and employ sound scientific methods.

Objective: Identify a matrix of operational changes for Lake Curry to support steelhead trout in Suisun Creek while retaining water supply.

Objective: Identify and map *Arundo donax* locations along Suisun and Wooden Valley Creeks, complete landowner outreach, develop an eradication and revegetation strategy.

Objective: Remove invasive non-native understory species and revegetate riparian corridor to support steelhead trout.

Objective: Reduce fine sediment in creek from agricultural operations through collaboration and educational workshops for landowners on Best Management Practices for vineyards and rural roads.

Objective: Complete riparian pilot projects and workshops with local landowners and a widespread community outreach and involvement effort to promote wildlife friendly agricultural practices.

Objective: Monitor pilot project sites and continue geomorphic, hydrologic, water quality and biological monitoring at study reaches and monitoring stations to evaluate project success, direct continued restoration projects and implement an adaptive management approach to restoration.

Hypothesis

Our hypothesis is built upon our current studies and assessment of Suisun Creek and the body of scientific information on steelhead trout riparian habitat and watershed processes. We propose that a broad program of actions including: assuring cold water reservoir releases for rearing habitat, winter flushing flows, sufficient for stream scouring processes, restoration and maintenance of the native riparian corridor, removal of invasive species, reduction in fine sediment sources integrated with scientific monitoring and carried out in collaboration with private landowners, agencies and interested groups will improve spawning and rearing conditions and increase and sustain steelhead trout populations in Suisun Creek.

2. JUSTIFICATION

Conceptual Model

Steelhead trout require a broad base of ecosystem functions. Hydrologic and geomorphic processes driven by the factors of climate and geology create, change, and over time, sustain the for instream habitat for trout as well as the riparian corridor. Steelhead trout habitat requires an overall balance between sediment and stream flow to provide gravel for spawning, water flow for migration and incubation, groundwater for rearing and the complex of habitat types inherent in the meandering channel form of pools, bars and riffles. Riparian habitat, an essential element of steelhead habitat, is also dependent on the balance of physical processes in the system. Each riparian tree species is adapted to germination and growth at a specific distance from the bankfull channel to avoid both long periods of inundation and mechanical damage from floods and to tap into groundwater near the low flow channel.

Anthropogenic factors associated with various land uses – intensive agriculture, water supply reservoirs, flood control practices, roads, and grazing affect physical processes in the watershed and creek and ultimately the condition of riparian and steelhead habitat. The time between some types of land use change, grazing or clearing of hillsides for example, and its full effect on creek habitat can be great making direct cause and effect relationships difficult to evaluate.

Additionally when there are numerous changes in a stream system the effects of all the changes are expressed together creating a need to address a variety of different problems and to carefully monitor the physical and biological trends in the system to diagnose and prioritize restoration needs.

The Suisun Creek Restoration Program was established based on the adaptive management approach to resource management and restoration. The program has established long term monitoring stations, completed surveys and collected data and used the surveys and data to identify high priority enhancement, restoration and sediment reduction studies and projects. The monitoring will be continued and used to document changes in hydrology, water temperature and

quality, channel form, bed composition, fine sediment levels and fish and riparian habitat quality and extent and in order to identify additional projects. The adaptive management approach assists in both documenting and actually improving conditions and habitats. The monitoring data allows for the creation of a base of information to improve decision-making and project design and indicates where additional efforts are needed.

From our first round of studies and assessments, we have identified a list of stressors and limiting factors to steelhead trout in Suisun Creek:

- Water temperature – water releases from Lake Curry in the summer are limited due to reservoir facilities and depths.
- Flushing winter flows – winter releases from Lake Curry may hold back the flood peaks of higher frequency flows such as the 2 year event and reduce the cleansing and scouring effects needed for instream habitats.
- Fine sediment – fine sediment likely comes from numerous sources and needs to be reduced throughout the creek system.
- Limited riparian habitat and widespread occurrence of invasive non-native plants. A healthy native riparian corridor is needed to support trout habitat.

To address these major limiting factors we have proposed:

- Feasibility study for revising the operation of Lake Curry to allow greater cold water releases in summer and determine if wintertime peak flow operations require alteration and what options are feasible. We have collected adequate information on summer operations (Hansen 2001) to define the need for a change in operations, but have inadequate analysis regarding the exact effects of winter operations on creek hydrology. The study will evaluate measures for reducing limiting factors to steelhead trout in Suisun Creek.
- A mapping study of locations and extent of *Arundo donax* along the 17 miles of Suisun and Wooden Valley Creeks. We currently lack adequate information on the level of invasion by this non-native plant, but believe it may be a major limiting factor to riparian corridor health and function.
- Pilot projects to demonstrate removal of widespread invasives *Vinca major* and *Rubus discolor* and revegetation with natives. These invasives reduce native riparian diversity and reproduction. These projects will allow for direct restoration of the riparian corridor and serve to educate local landowners.
- A series of workshops for farmers in the area focusing on soil conservation to reduce fine sediment sources and using the pilot projects for riparian corridor management techniques. The techniques pioneered in the Fish Friendly Farming Program in the Russian River will be used and have shown to be effective in water quality and habitat improvement.
- Monitoring of the invasive plant removal and revegetation projects to identify the most effective techniques and continuation of long term monitoring of geomorphic features of channel form, bed composition and levels of siltation to evaluate the improvements from changes in reservoir flows on Suisun Creek and revisions in land management; water temperature monitoring to evaluate improvements from reservoir changes, land management techniques and riparian revegetation.

3. APPROACH

Introduction

Our approach will build on our current studies and monitoring program, our conceptual model of steelhead habitat formation and enhancement and on implementing the adaptive management approach in a community-based effort.

Task 1 Monitoring of the Creek System

Task 1.1 Our monitoring program is currently funded through September 2002 and this proposal would allow for another 3 years of data collection. Our approach uses a series of long term creek study reaches to measure channel form and siltation, riparian habitat, water flow, water quality and temperature. It is impractical to monitor the entire length of Suisun or Wooden Valley Creek. Instead several study reaches are established on each creek in locations where the channel is unconfined and of low slope (1-2% or less), and where no significant tributary occurs. These features have been evaluated throughout the creek system and three study reaches established. The study reach is sized as ten to twenty bankfull channel widths in length. At each study reach a series of cross sections are surveyed, pebble count/embeddedness measurements are completed and residual pool volume or Vstar measurements are done on a yearly basis to track changes in channel form, bed composition and siltation levels. These methods follow protocols described in Washington Forest Practice Board 1997, Montgomery and Buffington 1993, Leopold et al 1992, Kondolf 1992, and Lisle and Hilton 1992.

The study reach approach allows for sample locations to be located where sediment supply and streambed changes from watershed activities are most likely to occur. Therefore monitoring can act as an early warning system, measuring conditions that directly affect steelhead habitat. It also allows for a safer method to measure sediment deposition on an annual basis than sampling suspended sediment during floods.

In addition to the study reaches, computerized water temperature monitors (Onset Hobo Temps) will be set to record water temperatures at 60 minute time intervals and placed in a number of habitat types. Temperature monitors will be placed at 8-15 sites on Suisun Creek and 10 sites on Wooden Valley Creek beginning in late winter/early spring 2002. Monthly water quality sampling will be done at up to 10 stations to test for pH, nitrate, ammonia, phosphate and dissolved oxygen using LaMotte or CHEMetrics test kits to provide general background water quality data.

All field monitoring is overseen by experienced, qualified professional scientists providing Quality Assurance/Quality Control. All instruments are calibrated prior to use and properly maintained.

This basic monitoring is currently funded through September 2002 and will establish a baseline of conditions in the Suisun Creek system. This task allows for continuation of this monitoring and its modification in conjunction with pilot projects and other study findings. The pilot projects identified in Task 4 are near an established study reach. Additionally, monitoring the overall condition of the creek system with the study reach approach provides quantitative information useful to local agencies and the community in demonstrating the need for various projects and effects of changes in practices (Task 5).

Task 2 Lake Curry Studies

The purpose of this task to investigate whether reasonable changes to the operation or physical characteristics of the dam or reservoir can be made that will preserve the existing beneficial uses of the dam while optimizing instream releases to Suisun Creek.

Task 2.1 In order to determine the active volume of water that may be available for water supply and instream release, a reliable map of the existing reservoir bathymetry is required. It has been 75 years since the dam was constructed and there could be an appreciable sediment buildup. A detailed bathymetric survey was completed 11 years ago. A new bathymetric survey will provide 1-foot contours of the lake bottom and is required to accurately determine the available dead and active storage and evaluate sediment accumulations in the last survey. Additionally, a survey of city, county, and state records will be conducted to acquire the original design drawings or survey of the dam site and any previous dredging to determine total sediment accumulation in the reservoir.

Task 2.2 An estimate of the annual sediment-loading rate will be developed for the reservoir. The loading will be based on a comparison of the original lake bathymetry and the bathymetry collected in Task 2.1. To augment this bathymetry, a field reconnaissance survey will be conducted of the upper watershed to identify any significant areas of mass wasting. This field reconnaissance will be augmented with a review of existing aerial photographs, and an estimate of sediment loading based on land use and condition.

Task 2.3 Prior to analyzing reservoir operations, a feasibility analysis of various project alternatives will be developed. The analysis will focus on the feasibility of implementing various physical and operational changes to Lake Curry. The feasibility analysis will identify opportunities and constraints for each element. The elements will include, but are not limited to, modifying the outlet works to provide for withdrawal of water from different depths in the reservoir, raising the dam to increase storage, modifying or replacing the spillway to change the magnitude and frequency of floodflows, or dredging of the reservoir to restore water storage capacity.

Task 2.4 To determine the optimum operation of the reservoir for water supply requirements and instream flows, a reservoir operations analysis model will be developed for Lake Curry. The base of the system will be the continuous watershed simulation model HSPF. This model was developed by the USGS and Stanford University and has been used on hundreds of watersheds across the country. The system will model long-term continuous inflow, outflow, precipitation, and evaporation from the reservoir. Water supply requirements, fisheries needs, and stream habitat needs will be entered as programmed demands on the reservoir. From this operations model, delivery rates and probabilities will be developed for each demand type. Changes to the reservoir operation will be developed and analyzed over a 40-year simulation period. The various operational scenarios will be developed in coordination with the City of Vallejo and the Solano County Water Agency. Typical “wet”, “dry”, and “normal” delivery rates will be developed for each scenario.

Task 3 *Arundo donax* Eradication

The purpose of this task is to map clumps of *Arundo donax* along 17 miles of Suisun and Wooden Valley Creeks and devise an eradication program in conjunction with local landowners and carry out a workshop to educate landowners on effective removal and revegetation techniques.

Task 3.1 Mapping and analysis of the extent of *Arundo* will be completed using USGS Digital Orthogonal Quarter Quadrangles (DOQQ) as base maps for the project. USGS DOQQ were developed from 1993 National Aerial Photography Program imagery (1:40,000 photo scale). The project 3.75-minute DOQQ are in the Universal Transverse Mercator coordinate system on the North American Datum of 1983 and have a ground pixel distance of 1 meter.

Both banks of 17 miles of Suisun and Wooden Valley Creeks will then be photographed during low level flights conducted during the winter months, when riparian plant species are dormant, providing the clearest view of *Arundo* stands. A series of sequential, overlapping photographs will be taken for both banks, at an approximate altitude of 500 feet.

The aerial photo coverage will be registered to the digital 1:12,000 USGS DOQQ base maps with a minimum of five control points for each blue-line aerial photo enlargement using the projective transformation routine in AutoCAD Release 12.0. Manual digitizing of *Arundo donax* feature boundaries will be completed.

The accuracy of registration between each blue-line enlargement and the base map will be measured by the Root Mean Square Error (RMSE), or an accuracy average of all tested points on a map (in statistical terms) and calculated in map units (meters). The USGS National Map Accuracy Standards constrain the maximum acceptable RMSE according to the intended scale of the output maps. Since the output maps for the project are to be plotted at a minimum scale of 1:6,000 (1"=500'), the tolerance value specified by the National Map Accuracy Standards for maps of this scale will be used as a guide during the registration operation.

Arundo feature boundaries and location will be digitized directly onto the USGS DOQQ base maps using ArcView 3.1 software.

Though the extent of *Arundo* growth and general locations of feature polygons are the main focus of this mapping project, the determination of stand growth-patterns in relation to surrounding vegetation is considered important due to the implications for eradication efforts and long term monitoring. *Arundo* stands will therefore be classified into the following categories:

- Overstory: discreet stands of *Arundo* growing as a mono-culture, visible on both the low level aerial photos and the low-level oblique photographs taken in winter.
- Overstory/Intermixed: stands of *Arundo* growing as overstory, but intermixed with other same-sized shrubs and trees.
- Understory: stands of *Arundo* growing as the understory layer, with an overstory canopy consisting of larger-sized trees.

ArcView 3.1 software will be used to convert AutoCAD drawings into a Geographic Information System (GIS) format, allowing data analysis and acreage compilation.

Task 3.2 The results of the *Arundo* mapping will be presented at local landowner workshops. An eradication strategy will be completed emphasizing eradication starting in the upstream portion of the creeks to reduce the likelihood of reinfestation and prioritizing sites where landowners are willing to sponsor a project. Detailed revegetation guidelines and re-treatment methods will also be presented to landowners. A summary description of the project and recommended practices will be mailed to all owners along each creek.

Task 4 Pilot Invasive Understory Plant Removal and Native Riparian Revegetation Projects

Two landowners have offered to sponsor demonstration projects in their riparian corridors (see attached letters). These two sites are relatively large: one mile of creek corridor and 800 feet of creek corridor a total of 7 acres and occur in the upstream section of Suisun Creek.

Task 4.1 Design invasive removal project. Flag patches of Vinca and blackberry to be treated and determine treatment method (foliar applications of glyphosate or cut and paint methods) according to the proximity of native species and likely effects of spray drift.

Task 4.2 Determine revegetation areas, native plant diversity and density and complete revegetation plan including collection sites for local stock of species to be planted.

Task 4.3 Complete CEQA documents and 1603 applications in conjunction with Department of Fish and Game. We anticipate developing model measures for removal of these non-native species and revegetation criteria for use by other grapegrowers along the creek. Fish and Game involvement in developing some standards for these types of projects will assist grapegrowers in their efforts to control Pierce's Disease harbored by the invasives and assist riparian restoration efforts by directing and educating landowners.

Task 4.4 Complete invasive plant removal by use of herbicide (glyphosate) applied by a licensed Pest Control Applicator (PCA). Dead biomass will be removed.

Task 4.5 Native tree and understory species will be planted using plants grown from native stock collected in the Suisun watershed to preserve local genetic integrity. Protective shelters will be installed to reduce animal browse and weed mat will be installed around plantings. Approximately 8 acres of revegetation will be carried out.

Task 4.6 Workshops and tours will be held of the project sites on wildlife friendly agriculture practices for riparian corridors. Workshops will be coordinated with the Napa County and Solano County Farm Bureaus and Napa County and Ulatris Resource Conservation District for the local farming community. The workshops will focus on plant identification, appropriate methods of invasive removal, plants to be used for revegetation in relationship to distance from the bankfull channel, planting times and methods, sources of native plants, follow up control and maintenance and sources of technical and financial assistance. A summary description of the project and recommended practices will be mailed to all owners along each creek.

Task 4.7 Pre and post project monitoring of the riparian corridor at each site will be completed. Transects will be completed across the riparian corridor at 500-1000 foot distances. At each four

foot interval across the vegetation transect the density, number and species of plants, tree height and dbh (diameter at breast height) is recorded. In addition, features such as wildlife habitat elements (snags, food sources etc.) are recorded. Four canopy cover measurements are recorded at each 4 foot interval in the stream channel using a spherical densiometer. These transects will be done prior to any project work (covered under our current project funding) and annually for 3 years following project implementation under this proposal.

Data from these transects will indicate changes in plant density, abundance and wildlife value as well as shade cover. The riparian monitoring protocol (Marcus & Jackson, 2000) is designed to be used in conjunction with Department of Fish and Game Wildlife Habitat Relationships (WHR) model to produce a list of amphibian, reptile, bird and mammal species based on particular vegetation features and habitat elements.

Task 4.8 Weeding and maintenance will be carried out for the first two years at three times a year. Summer irrigation will be carried out for the first year. Native plantings will be monitored for survivorship and replanting carried out if needed.

Task 4.9 Regrowth of invasive plants will be monitored twice a year and spot control completed.

Task 5 Erosion Control and Reduction of Fine Sediment in Creeks

This task will address erosion control practices for agricultural land uses to reduce sources of fine sediment into the creek system.

Task 5.1 A series of field workshops will be held for local landowners on winterization practices for vineyards and emergency erosion control measures. Winterization practices will be discussed and demonstrated in the field including: planting of cover crops for both new and mature vineyards, maintenance of vineyard drainage systems, winterization of vineyard roads and turnarounds and planting of filter strips along creek/vineyard borders, maintenance and winterization of dirt road systems including installation of energy dissipaters at culvert outlets.

Emergency erosion control practices will be discussed and demonstrated in the field including: analysis of problem and choice of practice, straw bale/straw waddle check dams and silt barriers, silt fences, rock drops, water bars, straw mulch, energy dissipaters and culvert maintenance.

These workshops will use the highly successful methodology of the Fish Friendly Farming Program from the Russian River watershed. The workshops will emphasize the use of farm planning techniques which inventory natural resources and current land management practices and demonstrate improved practices to conserve soil and emphasize wildlife and fish friendly conservation techniques.

Task 6 Community and Landowner Involvement

Our current program funding has allowed us to compile a complete list of all property owners in the watershed as well as along Suisun and Wooden Valley Creeks. This list includes over 450 landowners. We have received access agreements from property owners for the study reaches. We have also completed outreach to a number of agricultural organizations that are now

participants in the program. Our current efforts will extend until September 2002 and will include a series of local meetings to review program studies, potential projects and incorporate and respond to community issues and questions. We are seeking funding to continue community and landowner involvement as we carry out the proposed pilot projects, workshops and reservoir studies over the 3-year time frame of the grant. Our focus will be to develop additional projects through landowner outreach and produce newsletter and mailings advertising workshops in Tasks 4 and 5.

Task 6.1 Hold community meetings in various areas of the Suisun Creek watershed to present study and monitoring results, answer questions and present pilot projects.

Task 6.2 Publicize workshops for wildlife friendly agricultural practices for riparian corridor management and soil conservation through mailings, articles for local newsletters and papers and presentations. Two newsletters for the project will be prepared and mailed out to all 450 landowners in the area each year listing the dates of workshops, meetings and other information.

Task 6.3 Coordinate with the SCRT and attend meetings.

Task 7 Project Management

This task will involve the technical management of the project and oversight of the scientific team as well as the contract and fiscal management of the project including review of contracts, preparation of subcontracts, invoicing and fiscal oversight and preparation of required progress reports.

Task 7.1 Management of the scientific team will involve coordinating data collection schedules and project implementation, conferencing on results and providing fully integrated studies of trends and conditions in Suisun and Wooden Valley Creek. This task will also involve contacting study reach and pilot project landowners and coordinating data collection and restoration schedule with landowner needs and activities.

Task 7.2 Management of the contract with CalFed agencies and contracts with the consultants will require administrative duties such as invoice preparation and tracking, payment tracking, preparation of progress and final reports, subcontract preparation, oversight of all required insurance and project permits and access needs to comply with contract requirements.

4. FEASIBILITY

The proposal will continue and expand upon the Suisun Creek Restoration Program. The program already has a team of landowners, agencies and community members, agricultural organizations and fishery organizations involved in the restoration program. Several landowners have written letters agreeing to sponsor major pilot restoration projects (see attached). Study reaches and monitoring stations have been established with permission from landowners and several studies of Lake Curry and Suisun Creek have been completed. These accomplishments pave the way for the actions proposed in this grant.

The pilot invasive removal and revegetation projects (Task 4) require permits and CEQA compliance. The planning of these projects and permit/CEQA process will be done in the first year of the grant allowing adequate time for implementation, workshops and follow up.

5. PERFORMANCE MEASURES

The Suisun Creek Restoration Program incorporates a monitoring program of geomorphic, hydraulic, riparian, water quality and temperature protocols. The long term effectiveness of changes in fine sediment supply, reservoir operations and revegetation are measured by this system-wide monitoring approach as well as site specific performance measures as outlined below.

Task 1 – Performance measures will be: Annual summary reports of data collected at all study reaches and monitoring stations and compilation of trends in geomorphic, biological and water quality conditions in Suisun Creek and Wooden Valley Creek. Study reach or station data collected near pilot project sites will be analyzed for changes relative to the pilot project objectives and workshop sites expected outcomes.

Task 2 – Performance measure will be: production of a map of *Arundo donax* locations and extent and development of an eradication strategy as well as completion of workshops for landowners along the creek about *Arundo*, its removal, revegetation practices and participation in eradication efforts.

Task 3 – Performance measure will be:

- Preproject quantitative riparian transects with canopy closure measurements and photomonitoring
- Detailed project plans for invasives removal and revegetation showing transect locations
- Postproject monitoring using quantitative riparian transect and canopy closure, revegetation survival and invasive re-treatment
- Summary report on monitoring
- Landowner workshops and tours

Task 5

- Preworkshop documentation of winter bareground areas
- Post workshops review of increase in use of winterization practices

Task 6

- Meeting summaries and newsletters

6. DATA HANDLING AND STORAGE

Each data collection protocol is overseen by a qualified scientist with QA/QC compliance. Data sheets are filled out by the scientist. Data sheets are copied with one copy stored with CSPA and one stored with Laurel Marcus and Associates, the prime contractor for the program. Monitoring data is then archived in an Excel based data storage system developed by Laurel Marcus and Associates and Dennis Jackson for the Russian River monitoring program. This system has separate spread sheets by study reach for survey data, pebble counts/embeddedness, Vstar, riparian transects, canopy closure, each water quality parameter and the Onset water temperature

readouts. Once archived, data are backed up on CDs and stored in a separate location to assure no loss of data due to fire or other calamities. The monitoring and *Arundo* mapping data will also be entered into the Suisun Creek Restoration Program GIS.

7. Expected Products/Outcomes

This proposal will produce the following:

- Study of operational alternatives for Lake Curry to support water supply and steelhead trout in Suisun Creek. A summary report will be produced.
- Mapping of *Arundo donax* along 17 miles of creek, preparation of eradication strategy and completion of landowner outreach. A summary report will be produced and GIS layer produced.
- Two pilot projects encompassing 8 acres will be completed including removal of invasive riparian plants *Vinca major* and *Rubus discolor*, revegetation with natives, workshops for landowners to promote riparian revegetation practices, monitoring and follow-up maintenance. A summary report will be produced.
- Workshops for farmers to promote erosion control and reduction of fine sediment into creeks.
- Monitoring of creek geomorphology, riparian vegetation, water quality and water temperature. A summary report will be produced.
- Improved habitat conditions for steelhead trout

8. SCHEDULE

We are assuming contracts will be completed in September 2002 and therefore work can begin in September 2002.

Task 1 Monitoring of the Creek System September 2002 – Start
September 2005 – Complete

Milestones: Annual summary report of data collection and trends analysis

Task 2 Lake Curry Studies September 2002 – Start
September 2003 – Complete

Milestones: Report on feasibility of reservoir operational changes

Task 3 *Arundo donax* Eradication September 2002 – Start
September 2003 – complete mapping, landowner outreach, complete eradication strategy and workshops on *Arundo* removal

Task 4 Pilot Invasive Understory Plant Removal and Native Riparian Revegetation Projects September 2002 – Start, project design, CEQA/permits, pre-project monitoring
June 2003 – Invasives removal, collection and propagation of natives and landowner workshops

January 2004 – Revegetation installation,
landowner workshops
June 2004 – Postproject monitoring, maintenance
follow-up
September 2005 – Landowner workshops and tours

Task 5 Erosion Control and Reduction of Fine Sediment in Creeks

September 2002 – Start, complete workshops each
fall/winter

Task 6 Community and Landowner Involvement

September 2002 – Start
September 2005 – Complete

Task 7 Project Management

September 2002 – Start
September 2005 – Complete

Task 2, 3, 4 and 5 are relatively independent of one another and if required one to several could be funded. Tasks 1, 6 and 7 would need to be funded in conjunction with Tasks 2, 3, 4 or 5 to create a complete program. However, to reach the goal of restoring steelhead habitat in Suisun Creek the work effort in Tasks 1-7 all need to be carried out as all these tasks address limiting factors to steelhead trout recovery.

B. APPLICABILITY TO CALFED ERP AND SCIENCE PROGRAM GOALS AND IMPLEMENTATION PLAN AND CVPIA PRIORITIES

1. The Suisun Creek Restoration Program addresses a number of the Restoration Priorities for the multi-Regional Bay-Delta Area including:

- “Prevent the establishment of additional non-native species and reduce the negative biological, economic, and social impacts of established non-native species in the Bay-Delta estuary and its watersheds.” Tasks 3 and 4 directly address this priority.
- “Develop programs for Wildlife-Friendly Agriculture and conduct studies to better understand relationships between farming and wildlife habitat.” Tasks 3, 4, and 5 directly address this priority.
- “Ensure that restoration is not threatened by degraded environmental water quality.” Task 1, 2 and 5 directly address this priority.
- “Ensure recovery of at-risk species by developing conceptual understanding and models of processes that cross multiple regions.” The entire proposal focuses on action to restore and sustain threatened steelhead trout in Suisun Creek.

Priorities from the Bay Region include:

- “Implement actions to prevent, control and reduce impacts of non-native species.” Tasks 3 and 4 directly address this priority.
- “Restore shallow water, local stream and riparian habitats for the benefit of at-risk species while minimizing potential constraints to successful restoration.” Tasks 3 and 4 directly address this priority.

- “Protect at-risk species in the Bay using water management and regulatory approaches.” Task 2 addresses water management to support threatened steelhead trout.
- “Use monitoring, evaluations of existing monitoring data, and new investigations to develop improved strategies for restoring Bay fish populations and at-risk species.” The entire proposal focuses on collecting and using monitoring data to improve restoration strategy for steelhead trout.

The overall goal of the Suisun Creek Restoration program is to restore and protect habitat for the threatened wild steelhead population in this system by eradicating invasive species and revegetating riparian corridors with natives, promote wildlife friendly agricultural practices through workshops on riparian corridor management and soil conservation, study options to change operation of the major reservoir in the system to support steelhead, monitor project results and a number of conditions in creeks to direct future projects, implement an adaptive management approach to sustain fish and riparian habitat overtime and to work closely with the community and integrate protective measures into land management practices.

2. The Suisun Creek Restoration Program builds on a community based effort started in 1999. It also implements the Bay Ecosystem Habitat Goals Project which recommends in the Suisun Creek region: “restoring and enhancing riparian vegetation along streams which support steelhead.”
3. Not applicable
4. Not applicable
5. This proposal complements the current efforts on Suisun Creek and its tributaries by expanding the program from preliminary studies to focused studies and implementing pilot projects and landowner based actions and workshops.
6. Not Applicable

C. QUALIFICATIONS

California Sportfishing Protection Alliance (CSPA) is a 501(c)(3) nonprofit organization dedicated to the restoration of sportfish including steelhead trout in California. **John Beuttler** will serve as the CSPA representative on the Suisun Creek Restoration Program as he has for the past two years.

The California Sportfishing Protection Alliance has contracted with **Laurel Marcus and Associates (LMA)** to act as their representative and point of contact for the Suisun Creek Restoration Project. LMA will also serve as the prime contractor for the program. LMA is a natural resources planning and restoration project firm and is currently directing the monitoring and creek assessment, GIS development, and landowner outreach for Suisun Creek under contract to CSPA and with the support of the Suisun Creek Restoration Team. **Laurel Marcus** will serve as project manager and oversee all aspects of the program. Ms. Marcus has over 20 years of experience in ecological restoration of river, creek and wetland habitats as well as watershed assessment and monitoring. She has overseen the design and permitting and implementation of over 100 projects. She is the primary author of Fish Friendly Farming, an award winning wildlife friendly agriculture program being implemented in the Russian River

watershed. Ms. Marcus currently is implementing and teaching workshops on riparian restoration, watershed and creek monitoring and soil conservation and erosion control in the Russian River and other locations.

Dennis Jackson is a hydrologist who is currently working with LMA on the field monitoring in Suisun Creek and would continue to carry out the field monitoring. Dennis previously served as director of the Mendocino County Water Agency and has over 20 years experience in monitoring hydrologic and geomorphic processes in creeks and rivers.

Circuit Rider Productions (CRP) will complete the *Arundo* mapping and eradication strategy and the revegetation design, installation and maintenance for the two pilot projects. CRP is a 501(c)(3) non-profit organization specializing in ecological restoration, GIS and natural resources mapping and the design and installation of native plant revegetation projects. Since its founding in 1976 CRP has implemented thousands of projects in California. **Karen Gaffney** will oversee Task 3 and portions of Task 4. Karen is just completing several major studies of *Arundo* and *Vinca* in riparian ecosystems in the Russian River watershed.

Tom Burke, principal of **Hydrologic Systems**, will carry out Task 2, the evaluation of options for Lake Curry operations. Mr. Burke is a water resources engineer with over 20 years of experience in hydrologic modeling. Tom has served as the design engineer for the development and analysis of the Cernillos Dam diversion tunnel and spillway and Portugeses Dam and has completed numerous analyses of dam operations as well as habitat restoration studies.

All of the members of the study team have worked together for many years on a variety of restoration projects.

For the pilot restoration projects (Task 4) LMA will manage the overall project. CRP will provide the revegetation design, grow the native plants in their nursery, install the plants and provide follow-up maintenance. LMA will complete pre and post monitoring of the riparian corridor and working with Dennis Jackson the monitoring of nearby study reaches outlined in Task 1. LMA, working with Department of Fish and Game will also complete CEQA and permit documents, coordinate all activities with the landowner and organize the workshops for landowners. LMA has a licensed PCA on staff for the removal of the invasives. LMA in conjunction with other team members and CSPA will complete the summary report.

D. COST

1. Budget (see Budget Form VII)

2. Cost –Sharing – The Suisun Restoration Program has received \$150,000 from the State Coastal Conservancy through a grant to CSPA for the first phase of the program and the City of Vallejo has contributed \$50,000 to preliminary studies of Suisun Creek and Lake Curry.

E. LOCAL INVOLVEMENT

Local involvement is a cornerstone of the Suisun Creek Restoration Program. The Suisun Creek Restoration Team outlined in Section 1 includes local, state and federal government agencies, elected officials, landowners, agricultural groups and fishery groups concerned about Suisun

Creek. The goals of the team are also included in Section 1. We have a community and landowner outreach ongoing and have outlined extending it (Task 6) to assure projects continue to be developed in collaboration with private landowners.

F. COMPLIANCE WITH STANDARD TERMS AND CONDITIONS

We have reviewed the standard State and Federal contract terms in Attachments D & E and do not foresee any problems with them.

G. LITERATURE CITED

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Twin Creeks Vineyards **dba Brocap Vineyard Company**

3600 Wooden Valley Road, Napa, CA 94558
5449 Williams Road, Suisun, CA 94585

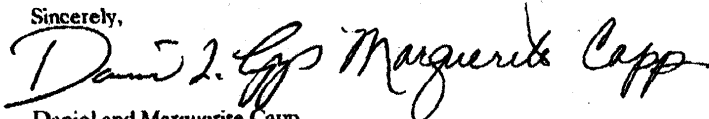
Phone (707)435-9056
Fax (707)425-4179

Laurel Marcus
Project Director
Suisun Creek Enhancement Program
California Sportfishing Protection Alliance
3661 Grand Ave #204
Oakland CA 94610

Dear Laurel,

This letter serves to confirm our interest and willingness to participate in a non-native plant removal project in the riparian corridor on our land along Suisun and Wooden Valley Creeks. We are also willing to participate in revegetation projects using native plants in these areas. As we have done in the past to allow for scientific monitoring, we are happy to sign the landowner access agreement and look forward to working on the project with you. We are also willing to host field trips by landowners from the community to allow our projects to serve as demonstrations and educate landowners about invasive plant removal and revegetation with natives. We have approximately a mile of frontage on the two creeks we are willing to use as part of the project.

Sincerely,



Daniel and Marguerite Capp
3600 Wooden Valley Rd., Napa, CA 94558
5449 Williams Rd., Suisun, CA 94585
1000 Wooden Valley CrossRoads, Suisun, CA 94585

September 17, 2001

Laurel Marcus, Project Director
Suisun Creek Enhancement Program
California Sportfishing Protection Alliance
3661 Grand Ave #204
Oakland, CA 94610

Dear Laurel,

This letter serves to confirm our interest and willingness to participate in a non-native plant removal project in the riparian corridor on our land along Suisun and Wooden Valley Creeks. We are also willing to participate in revegetation projects using native plants in these areas. As we have done in the past to allow for scientific monitoring, we are happy to sign the landowner access agreement and look forward to working on the project with you. We are also willing to host field trips by landowners from the community to allow our projects to serve as demonstrations and educate landowners about invasive plant removal and revegetation with natives.

We have approximately 800 feet of frontage on Suisun Creek we are willing to use as part of the project.

Sincerely,


William J. & Roxanne Wolf