

Phase III Conical Fish Screen Proposal

Project Information

1. **Proposal Title:**

Phase III Conical Fish Screen Proposal

2. **Proposal applicants:**

Steven Chappell, Suisun Resource Conservation District

3. **Corresponding Contact Person:**

Steven Chappell
Suisun Resource Conservation District
2544 Grizzly Island Road Suisun, CA 94585
707 425-9302
srcd@castles.com

4. **Project Keywords:**

**At-risk species, fish
Entrainment
Fish Passage/Fish Screens**

5. **Type of project:**

Fish Screen

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

No

7. **Topic Area:**

Fish Screens

8. **Type of applicant:**

State Agency

9. **Location - GIS coordinates:**

Latitude: 38.090187

Longitude: -121.9006

Datum:

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

Potential fish screen locations would be along the western side edge of the Montezuma Slough within the Suisun Marsh. We are seeking funding for three screens, but we have five potential locations for screen placement. Presently the five potential locations control water for 1,994.77 acres.

10. **Location - Ecozone:**

2.1 Suisun Bay & Marsh

11. **Location - County:**

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:**

7

15. **Location:**

California State Senate District Number: 4

California Assembly District Number: 8

16. **How many years of funding are you requesting?**

2

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: 22

Total Requested Funds: 1,096,960.62

b) Do you have cost share partners already identified?

No

c) Do you have potential cost share partners?

Yes

If yes, list partners and amount contributed by each:

Jeff Dennis TBA

Douglas Alburger TBA

Jack Hare TBA

Scott Bohannon TBA

Hal Johnson TBA

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?

Yes

If yes, identify project number(s), title(s) and CVPIA program.

5-FG-20-13210 Suisun Marsh Wetland Diversion Screening Category III

B-81153Am1	Suisun Marsh Wetland Diversion Screening	Four Pumps Grant Program
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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)

Beth Campbell National Marine Fisheries

21. Comments:

Question 17c. Landowners will contribute all maintenance costs which are yet to be determined.

Environmental Compliance Checklist

Phase III Conical Fish Screen Proposal

1. CEQA or NEPA Compliance

- a) Will this project require compliance with CEQA?

No

- 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.

Neither CEQA or NEPA are required since Department of the Army Regional General Permit Number 3 (file no. 24215N) allows for the installation of no more than 1,000 square feet of wetlands throughout the marsh per year during installation of fish screens. The Permit runs through November 15, 2005. The proposed work would be completed by 2003.

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

CEQA Lead Agency:

NEPA Lead Agency (or co-lead):

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
- X**none

NEPA

- Categorical Exclusion
- Environmental Assessment/FONSI
- EIS
- X**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.

Neither CEQA or NEPA are required since Department of the Army Regional General Permit Number 3 (file no. 24215N) allows for the installation of no more than 1,000 square feet of wetlands throughout the marsh per year during installation of fish screens. The Permit runs through November 15, 2005. The proposed work would be completed by 2003.

4. CEQA/NEPA Process

- a) Is the CEQA/NEPA process complete?

Not Applicable

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

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:

Permission to access state land.

Agency Name:

Permission to access federal land.

Agency Name:

Permission to access private land.

Landowner Name:

6. Comments.

Land Use Checklist

Phase III Conical Fish Screen Proposal

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).

We propose to install conical fish screens on three of the five proposed locations. Fish screens do not alter land use.

4. **Comments.**

Conflict of Interest Checklist

Phase III Conical Fish Screen Proposal

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):

Steven Chappell, Suisun Resource Conservation District

Subcontractor(s):

Are specific subcontractors identified in this proposal? Yes

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

Francis E. Borcalli Borcalli & Associates

Timothy Buller Borcalli & Associates

Paul Williams Borcalli & Associates

None None

None None

None None

None None

Helped with proposal development:

Are there persons who helped with proposal development?

Yes

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

Steven Chappell Suisun Resource Conservation District

Comments:

Budget Summary

Phase III Conical Fish Screen Proposal

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.

Federal Funds

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	Project Management	10.5	840.00				3106.86			3946.86		3946.86
2	Project Coordination	13.5	1080.00				1615.56			2695.56		2695.56
3	Permit Compliance	30	2400.00							2400.0		2400.00
4	design criteria finalization						248.55			248.55		248.55
5	Prepare Preliminary Design						994.20			994.2		994.20
6	Prepare construction/fabrication documents						9196.35			9196.35		9196.35
6	survey, mapping and geotechnical survey						11400.00			11400.0		11400.00
7	srtd single audit								3500.00	3500.0		3500.00
8	phone/travel								6500.00	6500.0		6500.00
9	fabricate and purchase materials						548790.00			548790.0		548790.00
10	overhead and profit									0.0	120733.8	120733.80
11	performance and payment bonds									0.0	4939.11	4939.11
		54	4320.00	0.00	0.00	0.00	575351.52	0.00	10000.00	589671.52	125672.91	715344.43

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	manage fabrication and purchasing	33	2640				17398.50			20038.5		20038.50
2	prepare As-built Drawings						1242.75			1242.75		1242.75
3	Test and Deliver Facilities						1242.75			1242.75		1242.75
4	Construction					206100.00		11700.00		217800.0		217800.00
5	Construction Management						39000			39000.0		39000.00
6	telemetry station Upgrade						4500.00			4500.0		4500.00
7	SRCD single audit								7000.00	7000.0		7000.00
8	phone/travel								6500.00	6500.0		6500.00
9	overhead and Profit									0.0	45342.00	45342.00
10	Performance and Payment Bond									0.0	1854.90	1854.90
		33	2640.00	0.00	0.00	206100.00	63384.00	11700.00	13500.00	297324.00	47196.90	344520.90

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
		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Grand Total=1059865.33

Comments.

SRCD will require an administration fee (3.5% of the Grand Total) which will take place in Year 2. The Admin. fee based on the Grand Total is \$37,095.29. That brings the TOTAL grant request to \$1,096,960.62.

Budget Justification

Phase III Conical Fish Screen Proposal

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

In year 1, SRCD staff (Steven Chappell) will spend an estimated 3.5 Hrs on project management, 4.5Hrs on Project Coordination, and 10.0Hrs on Permit compliance. In year 2 SRCD staff will spend and estimated 11hrs. on managing fabrication and purchasing of materials.

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

SRCD staff compensation is estimated at a rate of \$80.00/hr.

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

Benefits are included in the estimated salary for the SRCD staff.

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

All travel is expected to be local. Travel expenses for the consultants will be incorporated into Other Direct Costs.

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

Electrical Conduit, Fittings, and Wire \$800ea. Power Supply and Electronic Enclosure \$2,800ea. Electronic, Solar, and Screen Platforms \$2,700ea. Service Platform With Valve Support Structure \$1,300ea. Debris Barrier \$3,600ea. Each items cost must be multiplied by a factor of 3, since all 3 of the fish screens require these parts.

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.

The consultants will be paid an estimated rate of \$82.85/hr for their services. In year 1 they are estimated to spend 12.5hrs on project management, 6.5hrs on project coordination, 1hr on design criteria finalization, 4hr to prepare preliminary design, 37hrs on preparation of construction/fabrication. Subconsultants would be paid a fee \$11,400.00 for surveying, mapping and geotechnical surveys of the three fish screen areas. In year 2, consultants would be estimated to spend 70hrs managing fabrication and purchasing, spend 5hrs. preparing as-built drawings, and spend 5hrs testing and delivering fish screens. Also taking place in year two would be the construction taking place of the three fish screens which would cost a total of \$206,100.00.

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.

Screen Assembly and Intake \$75,030ea. Intake Support Structure \$18,300ea. Headwall With Deadman \$12,900ea. Diversion and Flow Control System \$13,500ea. Stilling Well \$17,500ea. Hydraulic Valves, Actuators, and Mounting Hardware \$16,500ea. Remote Telemetry and Operations System \$18,000ea. Headwall With Deadman \$16,900ea. Remote Telemetry and Operations System \$10,700ea. Each items cost must be multiplied by a factor of 3, since all 3 of the fish screens require these parts.

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 presentatons, reponse to project specific questions and necessary costs directly associated with specific project oversight.

The construction management is estimated to cost \$13,000.00 for each fish screen, which totals to \$39,000.00. Project management will be handled by both the SRCD and the consultants. Those hours have already been incorporated into the budget.

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

Direct Costs that are expected to be incurred are cell phone/travel expenses. These expenses are budgeted at a rate of \$6,500.00 per year. SRCD will also be budgeting for the cost of a single audit each year. The first year the audit will cost \$3,500.00, the second year it will cost \$7,000.00

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.

The overhead rate of 22% that the consultants charge for profit is to pay for their staff and overhead fees. The consultants also require 0.9% overhead rate for performance and payment bonds. Additionally, SRCD is required to charge a 3.5% Administration fee to the grand total of the proposal. SRCD's adiministration fee encompasses accounting, project administration, etc.

Executive Summary

Phase III Conical Fish Screen Proposal

The objective of this CALFED proposal is to construct and install three phase III conical fish screens on priority 1, 2, and 3 water diversions in the Suisun Marsh. At a cost of \$1,096,960.62 to complete, the project would protect and enhance delicate fish populations. Design and planning would start in April and May of 2002 with construction and installation taking place July through September of 2003. The ecological and biological importance of the fish screens is to decrease the entrainment of sensitive native and anadromous fish species while allowing private landowners to effectively manage the seasonal wetlands. Additional fish screens will reduce the take of sensitive fish species and aid in their recovery. The properties were selected using criteria developed by CDFG. Five possible properties were selected to house these 3 new conical fish screens. The landowners will be responsible for the cost of operation and maintenance of the fish screen installed on his property. All landowners will have SRCD staff available to assist in operation and maintenance and train them on operation. The landowners are strictly spending out of pocket money to help create better wildlife habitat and need help to comply with current restrictions to create the best habitat possible, and to limit impacts to fisheries and other important and endangered species. The installation of the fish screens is made possible only with the help of state and federal funds. According to the Ecosystem Restoration Program Plan (ERPP), Suisun Marsh is listed as a significantly important area to many species. The ERPP states that incidental take through diversions as one of the primary stressors on fish in the Suisun Marsh. The fish screening program will help alleviate the pressure and stress and numerous fish species by screening diversions in critical habitat and at the same time protect the seasonally flooded wetlands and migratory waterfowl. Concentrations of sensitive fish species in this critical habitat necessitates screens on intake diversions to help reduce entrapment.

Proposal

Suisun Resource Conservation District

Phase III Conical Fish Screen Proposal

Steven Chappell, Suisun Resource Conservation District

A Project Description: Project Goals and Scope of Work

1) Problem

The objective of this CALFED proposal is to construct and install three conical fish screens on priority 1, 2, and 3 water diversions in the Suisun Marsh. Currently there are 17 priority diversions that have not been screened under the existing Suisun Marsh Diversion Screening Program. To date, the Suisun Resource Conservation District (SRCD) has installed eleven conical fish screen facilities in the Suisun Marsh. The ecological and biological importance of the fish screens is to decrease the entrainment of sensitive native and anadromous fish species while allowing private landowners to effectively manage the seasonal wetlands. Additional fish screens will reduce the take of sensitive fish species and aid in their recovery.

The Suisun Marsh supports resident populations of delta smelt, Sacramento splittail, and striped bass. It also serves as a migration corridor and rearing habitat for adult and juvenile winter-run and spring and fall-run chinook salmon, and steelhead. Migratory birds are abundant in the Marsh and utilize the seasonal wetlands for food, cover and nesting. The open shallow water habitat within the wetlands are used by shorebirds, ducks, and geese while the emergent plants provide refuge for neotropical migrants and resident bird species.

In 1994 SRCD began working with the California Department of Fish and Game (CDFG) to develop and implement the Suisun Marsh Fish Screen Program in response to the reasonable and prudent measures outlined in SRCD's U.S. Army Corps of Engineers regional maintenance permit (PNR20066E98) Section 7 Biological Opinions for Sacramento River winter-run chinook salmon, Sacramento splittail and delta smelt. In response to this, CDFG established a prioritized diversion screening criteria for areas in the Suisun Marsh based on information obtained from surveys and designated critical habitat areas of delta smelt, Sacramento splittail and winter and spring run chinook salmon.

Phase one and two of the SRCD screening program included screening the highest priority diversions in the Marsh. If funded under CALFED, our goal is to continue the screening of priority 1, 2, and 3 diversions. This goal of this proposal is to design, construct, and install 3 conical screens in 2002/2003. At a cost of \$1,096,960.62 to complete, the project would protect and enhance delicate fish populations. Design and planning would start in April and May of 2002 with fabrication in the spring of 2003 and construction and installation taking place June through September of 2003.

Suisun Marsh legislative restrictions dictate that lands must be managed for wildlife. As a result of the restrictions, the private landowners of the Suisun Marsh receive no income from the sale of agriculture crops or water. The landowners are typically spending out of pocket money to maintain and enhance wildlife habitat. Grant Assistance to construct fish screens will ensure landowners can comply with these restrictions to create the best habitat possible, and limit impacts to fisheries and other important and endangered species. The installation of the fish screens is made possible only with the help of state and federal funds.

According to the Ecosystem Restoration Program Plan (ERPP), Suisun Marsh is listed as a significantly important area to many species. The ERPP states that incidental take through diversions as one of the primary stressors on fish in the Suisun Marsh. The fish screening program will help alleviate the pressure and stress on numerous fish species by screening diversions in critical habitat and at the same time protect the seasonally flooded wetlands and migratory waterfowl. Delta smelt are reported to be most abundant in Montezuma Slough, Suisun Bay, Suisun Slough, Nurse Slough and the western Delta. Concentrations of sensitive fish species in these critical habitats necessitate screens on intake diversions to help reduce entrainment. The screening program is a synergistic approach in the aid and recovery of many species and the enhancement of existing and secondary wetland resources.

This proposal would fund Phase 3 of the Suisun Marsh Diversion Screening Program. The installation and operation of 13 conical screens have been evaluated, tested and deemed successful.

The program has received overwhelming support from many private, state and federal agencies. These include National Marine Fisheries Service, U.S. Fish and Wildlife Service, California Waterfowl Association, Ducks Unlimited, Department of Fish and Game, Corps of Engineers San Francisco branch, and most private landowner in the Suisun Marsh. The private landowners not only support the program from a biological and ecological standpoint, but they also support it financially. The landowners will be responsible for the cost of operation and maintenance of the fish screen installed on his property. All landowners will have SRCD staff available to assist in operation and maintenance and train them on operation.

2) Justification – NA

3) Approach

Suisun Resource Conservation District (SRCD) proposes to continue implementation of the Suisun Marsh Fish Screen Program. Approximately 30 diversions along Montezuma Slough, Suisun Slough, and Nurse Slough are located within designated critical habitat areas of Suisun Marsh. Of the 30 diversions, five were screened in 1996, six were screened in 1997, and two were screened in 1998. With this CALFED grant request, three of the remaining 17 high priority unscreened diversions can be screened by the summer of 2003. These diversions are currently manually controlled slide gates used to divert water from tidal sloughs into the managed seasonal wetlands within the Suisun Marsh. When diverting water, unscreened diversions may allow fish to enter the seasonal wetlands where they are trapped and unable to return to the sloughs. This proposed conical screen design has been tested and approved by state and federal fish and wildlife agencies. Implementation of this program will also include an evaluation to determine the potential to downsize or consolidate remaining gravity flow diversions in the Suisun Marsh and reduce the overall number of unscreened diversions in the Marsh.

All screen sites have been prioritized through a ranking criteria developed by DFG, for long term implementation of this program. This criteria has been applied in two phases, biological and nonbiological. The biological criteria identifies critical habitat areas and long term benefits. The nonbiological criteria plays a secondary role in prioritizing diversions after the biological criteria is established. The biological criteria consists of:

- i. Location in the Marsh
 - Priority 1 – Diversions directly off of Montezuma Slough, without intervening vegetated berms
 - Priority 2 – Diversions on Montezuma Slough located behind vegetated berms
 - Priority 3 – Diversions on Suisun Slough or Nurse Slough
 - Priority 4 – The balance of the Marsh
- ii. Size
 - Priority 1 – Diversions larger than 36” in diameter
 - Priority 2 – Diversions between 24” and 36” in diameter
 - Priority 3 – Diversions smaller than 24” in diameter

The screen design was tested by the National Marine Fisheries Service, and consequently was approved by U.S. Fish and Wildlife Service, Department of Fish and Game, and the National Marine Fisheries Service. The screen design has been successful at reducing the inflow of water to 0.2 feet per second, which is the requirement for the delta smelt and less than the requirement of 0.33 feet per second for salmon, and also at keeping fish from being diverted in the seasonal wetlands.

The nonbiological criteria consists of electrical source, commitment of landowner for long term operation and maintenance of the screen facility, and permanency of diversion. The nonbiological criteria was a secondary way to rank diversions that already ranked high in the biological criteria. After the highest priority diversions were selected, a site evaluation is required because fish screen design needs to withstand harsh brackish environmental conditions of the Suisun Marsh. And because of environmental permitting concerns, additional evaluations are necessary to select screen location

The Suisun Marsh Diversion Screening Program has specifically designed screen facilities to meet the unique conditions of the brackish and tidal environment of the Suisun Marsh. To maximize life of the facility and minimize maintenance costs, the screens are constructed from corrosive resistant materials. To ensure efficient and effective operation, screens are designed to be readily removable for inspection and maintenance. The versatility of this structural design also extends the life of the structure by allowing it to be removed from the water during periods of no diversions to reduce the corrosive effects of the brackish environment. The screens are conical in shape, made from perforated stainless steel plate, with cleaning brushes driven by submersible hydrolic motors. A flow meter is installed within the polyethylene pipe to monitor flow and

modulate gate operations to ensure that approach velocities at the screen do not exceed the design criteria with daily tidal fluctuations. This screen design and its facilities have been tested, by National Marine Fisheries Service, and meet the criteria of approach velocities of 0.2 feet/sec for delta smelt and 0.33 feet/sec for salmon. These screen facilities are automated to operate unattended, but are monitored every 15 minutes via radio communications to the SRCD office, to ensure proper operation. The existing radio communication and monitoring equipment make this program unique in that additional screen facilities can be added to the current system and the infrastructure is already present and operating to accommodate any additions.

4) Feasibility

Under the USACE Regional General Permit and associated NMFS and FWS Biological Opinions, all environmental review and permits are in place to begin planning and construction immediately upon funding. There are no anticipated issues that will impact the immediate implementation of this proposal.

Environmental Permits

- i) SRCD/DFG U.S. Army Corps of Engineers Regional Maintenance permit (File No. 24215N).
 - **Water Control Structures Section 2.** - Installation of Fish Screens on Exterior Water Control Structures: No more than 1,000 square feet of wetlands throughout the marsh per year shall be filled during installation of fish screens
 - **Condition 10.** The SRCD and the CDFG shall continue to identify and prioritize placement of water control structures which require fish screens in consultation with the Corps, NMFS and US FWS. The SRCD and CDFG shall seek funding to install screens at the highest priority sites.
- ii) National Marine Fisheries Service
Endangered Species Act Section 7 Consultation, Biological Opinion Winter-run Chinook Salmon, Dated September 21, 1994
- iii) U.S. Fish and Wildlife Service
Endangered Species Act Section 7 Consultation, Biological Opinion No. 1-1-94-F-20 Delta Smelt, Dated August 29, 1994
- iv) California Clapper Rail Case No. 1-1-94-I-841
Letter dated May 2, 1994
- v) Department of Fish and Game will make on site inspections for rare plants prior to initiation of construction

5) Performance Measures

The project that will take place under this proposal will be managed and implemented in two different components: (1) design and construction, whereby Borcalli & Associates, Inc./Pacific Engineering Contractors, is the Design/Build Contractor. (2) operations, monitoring, and maintenance, whereby the SRCD or

the landowners are the operators. The project-specific performance measures that will be used to assess project success are:

a) Design Documents

A Project Management Plan (PMP) will be prepared and will provide the basis for conducting, coordinating, and guiding Borcalli & Associates, Inc., in performing the work. The schedule will be incorporated into the PMP. The protocol for effective coordination throughout the project will be developed with the SRCD and incorporated into the PMP.

A Quality Assurance Plan (QAP) will be written into the PMP. The QAP will facilitate the conduct of the Contractor's QA Committee for reviewing and checking work performed by the Contractor and its subcontractor(s) to ensure the timely completion and quality in the design, fabrication, and construction.

When the design criteria is in place, regulatory requirements must be met. Provisions of the Corps of Engineers' Permit include specific requirements concerning design and construction of the new intake facilities. The Contractor will consult with the regulatory agencies to confirm the criteria and to identify applicable criteria or conditions. This consultation will determine if the desired construction schedule can be achieved with yearly limitations on the extent of the work.

The Contractor will prepare a design report that sets forth the overall concept of the project standards for design and construction, conditions for operation and design, and the design criteria.

b) Completed Structure

Evaluations will be made while the construction of the fish screen(s) is in progress, so the completed fish screen will meet all of its' requirements. A Quality Assurance Program will be implemented that is consistent with the approved plans and specifications. Quality control surveys will be ordered as required.

On-site observations of the work in progress will be conducted to determine if the work proceeding is in accordance with the Contract Documents.

Subcontractors will be notified whenever any work is unsatisfactory, faulty, defective, or does not confirm to the Contract Documents, or has been damaged or does not meet the requirements of any inspection, test, or approval.

Logs, inspection reports, test reports, and photographs will be maintained to document construction and quality control activities.

The SRCD will inspect the work being performed at the site during construction and will review observations, comments, etc., with the Contractor.

c) Post-construction Evaluation

Upon completion of construction and installation of equipment, the Contractor will test the newly constructed facilities and document the tidal conditions and facility's performance.

The performance of the facilities will be evaluated in relation to the design criteria established for the club. The results of the tests will be reviewed with the SRCD. Copies of the information will also be provided to the SRCD.

d) Operations & Maintenance Plans

The operations and maintenance of fish screens will be the responsibility of the landowner(s) and the SRCD.

Fish screen operations will be reviewed daily on the SRCD reporting computer. Such operations include flow, pond stage, power supply, and response to warning flags if operational problems occur.

Weekly visual inspection of each screen site will be conducted to ensure proper operations, identify potential problems, and conduct minor preventive maintenance activities.

Normal maintenance activities on individual components of the conical fish screen facilities may occur on a yearly basis or multiyear interval. Routine maintenance activities include screen removal and cleaning, cathodic protection replacement, battery maintenance and replacement, desiccant removal and replacement, and cleaning brush replacement.

6) Data Handling and Storage - NA

7) Expected Products/Outcomes

The expected product in the construction and installation of three conical fish screens on privately owned unscreened diversions is the protection of fish from entrainment when water is diverted from marsh sloughs into seasonal wetlands. The fish species that inhabit the tidal perennial aquatic habitats in the Suisun Marsh include the winter-run chinook salmon (federally listed endangered), spring-run chinook salmon, steelhead trout (federally proposed endangered), delta smelt (federally listed threatened), longfin smelt, Sacramento splittail (federally proposed threatened), and green sturgeon.

The primary benefits of the Suisun Marsh Fish Screen Program include the recovery of federally listed and proposed-listed species wherein population numbers are anticipated to increase and exceed goals set by regulatory agencies. Future potential listings of fish species will also be avoided. Furthermore, because the fish screens will allow private landowners to divert water during critical plant growth periods, other species including migratory waterfowl and shorebirds will benefit by exploiting the resulting diverse, productive habitat of seasonal wetlands.

8) Work Schedule

The work that will take place in 2002 will be the surveys of the proposed areas, the design of the facilities, and the fabrication and manufacturing of the equipment. The actual construction and installation of the fish screens will take place from June through September of 2003.

B. Applicability to CALFED ERP and Science Program Goals and Implementation Plan and CVPIA Priorities

1. ERP, Science Program and CVPIA Priorities

The Suisun Marsh Fish Screening Program addresses several of the Stage 1 PSP priorities that CALFED ERP have outlined as implementation objectives and targets for the San Francisco Bay Region.

- **Achieve recovery of at-risk native species dependent on the Delta and Suisun Bay as the first step toward establishing large, self-sustaining populations of these species; support similar recovery of at-risk native species in San Francisco Bay and the watershed above the estuary; and minimize the need for future endangered species listings by reversing downward population trends of native species that are not listed.** (page 9, ERP Draft Stage 1 Implementation plan).
- **Use monitoring, evaluations of existing monitoring data and new investigations to develop improved strategies for restoring Bay fish populations and at-risk species** (page 103, ERP Draft Stage 1 Implementation plan).

Implementation of this proposal will assist in the further entrainment protection for the following fish species, as well as, assure the continued beneficial uses and habitat values for wetland dependent wildlife, which utilize the Suisun Marsh managed wetlands.

Delta Smelt	Splittail
Longfin Smelt	White Sturgeon
Green Sturgeon	Chinook Salmon
Steelhead Trout	Striped Bass
American Shad	Resident Fish Species
Western Pond Turtle	Salt Marsh Harvest Mouse
Waterfowl	Shorebirds & Wading Birds

This screening proposal also addresses the Anadromous Fish Restoration Program (AFRP) goals and objectives by improving survival rates by reducing or eliminating entrainment of juveniles at unscreened diversions and providing unimpeded adult fish passage.

The Suisun Resource Conservation District is currently pursuing the implementation of the third year of the Suisun Marsh Diversion Screening Program. Additional funding will continue the existing program with the long-term objective of screening all Priority 1, 2, 3 diversions in the Suisun Marsh.

2. Relationship to Other Ecosystem Restoration Projects

The Suisun Marsh Diversion Screening Program also addresses the Anadromous Fish Restoration Program (AFRP) goals and objectives by improving survival

rates by reducing or eliminating entrainment of juveniles at unscreened diversions and providing unimpeded adult fish passage.

3. Requests for Next-Phase Funding

This proposal is a phase III request and is a project that has the ability to stand-alone. It is and will be independent of any previous and future phases.

4. Previous Recipients of CALFED Program or CVPIA funding

The SRCD has previously received CVPIA and Category III funding for the installation of five conical fish screens in the summer of 1996 (Grant Agreement #5-FG-20-13210). With the successful completion of phase I, an additional seven fish screens were funded and installed under the Four Pumps Grant Program (Department of Water Resources Agreement B-81153Am1 and B-80917Am2).

5. System-Wide Ecosystem Benefits

The Suisun Marsh is listed as a significantly important area to many species. Incidental take through diversions as one of the primary stressors on fish in the Suisun Marsh. The fish screening program will help alleviate the pressure and stress on numerous fish species by screening diversions in critical habitat areas and at the same time protect the seasonally flooded wetlands and migratory waterfowl. Concentrations of sensitive fish species in these critical habitats necessitates screens on intake diversions to help reduce entrapment. The screening program is a synergistic approach in the aid and recovery of many species.

6. Additional Information for Proposals Containing Land Acquisition

No land acquisition will be necessary. Landowners that participate, will provide the site for the conical fish screen to be installed and access to that site.

C. Qualifications

The SRCD will provide the overall project management and coordination. Local landowners will operate and maintain the screen facility as a component of their local match. The SRCD will contract with Borcalli & Associates, Inc./Pacific Engineering Contractors, under a design-build arrangement, to perform the design and construction of the project.

Principal Personnel for the project:

Steven Chappell, B.S. Biological Science – Executive Director of the Suisun Resource Conservation District with six years of experience in implementing the fish screening program in the Suisun Marsh. Mr. Chappell has actively participated in the project design and grant administration for Phase 1 and Phase 2 of the SRCD's Suisun Marsh Screening Program and the Lower Joice Island Fish Screen Project. Additionally, Mr. Chappell's daily activities include contract administration,

environmental permitting, and compliance with regulatory issues associated with conducting activities in the Suisun Marsh wetland areas.

Francis E. Borcalli, P.E. – Principal Engineer and President of Borcalli & Associates, Inc., and Pacific Engineering Contractors with 35 years of experience related to the design and construction of water resource projects including fish screens, fish ladders, pumping plants, water control structures, pipelines, and water conveyance facilities. Mr. Borcalli’s background and experience provide a unique perspective that is critical to resolving complex resource problems today. In serving clients on the design and construction of numerous projects, Mr. Borcalli has had a great deal of involvement with resource and regulatory agencies relative to design, permitting, and funding. Mr. Borcalli will serve as the overall Project Manager and will be responsible for contract administration, design reviews, and quality assurance.

Timothy Buller, P.E. – Civil Engineer with Borcalli & Associates, with six years of experience in the design and construction of 13 fish screens in the Suisun Marsh, three fish screens and fish passage projects on Butte Creek, and a fish screen and fish passage project on the Ventura River in California. Mr. Butler will serve as the Project Engineer and will perform design, design reviews in preparing construction plans and specifications, and construction/fabrication contracts administration and inspection.

Paul Williams, E.I.T. – Civil Engineer with Borcalli & Associates, Inc., with 3-1/2 years of experience in design, preparing construction plans and specifications, and construction of hydraulic structures for dams, spillways, and culverts. Mr. Williams has developed three-dimensional structural models using the finite element structural analysis program and is familiar with modeling open channel water surface profiles and hydraulic structures. Mr. Williams has also been involved in planning, designing, and implementing wildlife and fisheries habitat restoration programs and the revegetation of levees. Mr. Williams will be involved in the project design and will participate in contract administration and inspection.

D. Cost

1. Budget

See Table 1 and Table 2.

2. Cost-Sharing

These five properties have been identified as potential locations for the three remaining phase III fish screens. These five properties willing to support the new phase III fish screens in the Suisun Marsh are: property numbers: #526 - Flatlander Duck Club, #607 - Ducks A Go-Go, #609-Black Dog Gun Club, #610 –West Wind Duck Club, and #932 – Concord Farms. These five properties have been contacted and are willing to install fish screens on their land. These landowners will be responsible for the cost of operation and maintenance of the installed fish screen.

Club Name	Club #	Acreage
Flatlander Duck Club	526	725.87
Ducks A Go-Go	607	75.47
Black Dog	609	115.00
West Wind	610	351.00
Concord Farms	932	1,047.43

Club #932 contributes to the water control of clubs other than itself. Club #932 affects the in take of water for club #923 and clubs #926 – 932.

E. Local Involvement

The SRCD worked with California Department of Fish and Game (CDFG) to initially develop and implement the Suisun Marsh Fish Screen Program. This program has received overwhelming support from many private, state and federal agencies. These include National Marine Fisheries Service, U.S. Fish and Wildlife Service, California Waterfowl Association, Ducks Unlimited, Department of Fish & Game, Corps of Engineers S.F. Branch, and most importantly the private landowners in the Suisun Marsh. The private landowners not only support the program from a biological and ecological standpoint, but they also support it financially. The landowners will be responsible for all costs of operation and maintenance of the fish screen once installed.

F. Compliance with Standard Terms and Conditions

The terms and conditions described in the CALFED application are agreeable with the Suisun Resource Conservation District and will be fully complied with.

G. Literature Cited

Ecosystem Restoration Program – Draft Stage 1 Implementation Plan. CalFed Bay-Delta Program. August 2001.

Morrow Island Fish Screen Project Distributed Screen Element – Proposal for Design, Construction, Operations and Maintenance. Submitted by: Suisun Resource Conservation District. November 15, 2000.

**TABLE 1.
FISH SCREEN BUDGET**

YEAR 1

Task/Activity	SRCD	Consultant	Total Cost per Screen	Total (3 Screens)
1. Project Management	280.00	1,035.62	1,315.62	3,946.85
2. Project Coordination	360.00	538.52	898.52	2,695.57
3. Permit Compliance	800.00		800.00	2,400.00
4. Design Criteria Finalization		82.85	82.85	248.55
5. Prepare Preliminary Design		331.40	331.40	994.20
6a. Prepare Construction/Fabrication Documents		3,065.45	3,065.45	9,196.35
b. Survey, Mapping and Geotechnical Survey		3,800.00	3,800.00	11,400.00
SRCD Single Audit	3,500.00		3,500.00	3,500.00
Phone/Travel		6,500.00		6,500.00
Fabricate and Purchase Materials		182,930.00		548,790.00
Consultant Overhead and Profit (22%)		120,733.80		120,733.80
Consultant Performance and Payment Bonds (.9%)		4,939.11		4,939.11
TOTAL				715,344.43

YEAR 2

Task/Activity	SRCD	Consultant	Total Cost per Screen	Total (3 Screens)
7. Manage Fabrication and Purchasing	880.00	5,799.50	6,679.50	20,038.50
8. Prepare As-Built Drawings		414.25	414.25	1,242.75
9. Test and Deliver Fish Screens		414.25	414.25	1,242.75
Construction		68,700.00	68,700.00	206,100.00
Construction Management		13,000.00	13,000.00	39,000.00
Equipment		3,900.00	3,900.00	11,700.00
Telemetry Station Upgrade		4,500.00		4,500.00
SRCD Single Audit	7,000.00		7,000.00	7,000.00
Phone/Travel		6,500.00		6,500.00
Consultant Overhead and Profit (22%)		45,342.00		45,342.00
Consultant Performance and Payment Bond		1,854.90		1,854.90
TOTAL				344,520.90

TOTAL (YEAR 1 and YEAR 2):	\$ 1,059,865.33
SRCD Administration Fee (3.5% of TOTAL cost):	\$ 37,095.29
TOTAL AMOUNT OF GRANT PROPOSAL:	\$ 1,096,960.62

PHASE III FISH SCREEN PROPOSAL

CONSTRUCTION COST

Item	Structure			Total
	Screen - 1	Screen - 2	Screen - 3	
Materials				
Screen Assembly and Intake	75,030	75,030	75,030	225,090
Intake Support Structure	18,300	18,300	18,300	54,900
Headwall With Deadman	12,900	12,900	12,900	38,700
Diversion and Flow Control System	13,500	13,500	13,500	40,500
Stilling Well	17,500	17,500	17,500	52,500
Hydraulic Valves, Actuators, and Mounting Hardware	16,500	16,500	16,500	49,500
Electrical Conduit, Fittings, and Wire	800	800	800	2,400
Power Supply and Electronic Enclosure	2,800	2,800	2,800	8,400
Electronic, Solar, and Screen Platforms	2,700	2,700	2,700	8,100
Service Platform With Valve Support Structure	1,300	1,300	1,300	3,900
Debris Barrier	3,600	3,600	3,600	10,800
Remote Telemetry and Operations System	18,000	18,000	18,000	54,000
Distribution Structure	0	0	0	0
Subtotal	182,930	182,930	182,930	548,790
Construction, Labor, and Equipment				
Mobilization and Demobilization	3,900	3,900	3,900	11,700
Intake and Support Structure	9,700	9,700	9,700	29,100
Headwall With Deadman	16,900	16,900	16,900	50,700
Pipe and Control Installation	6,500	6,500	6,500	19,500
Finish Work	16,700	16,700	16,700	50,100
Construction Management	13,000	13,000	13,000	39,000
Electrical Preparation and Assembly	8,200	8,200	8,200	24,600
Remote Telemetry and Operations System	10,700	10,700	10,700	32,100
Subtotal	85,600	85,600	85,600	256,800
Master Station Telemetry and Operations System Upgrades				4,500
Subtotal				4,500
TOTAL MATERIAL AND EQUIPMENT				810,090
CONSULTANT OVERHEAD AND PROFIT (22%)				178,220
CONSULTANT PERFORMANCE AND PAYMENT BONDS (.9%)				8,895
TOTAL				997,205