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CALFED

CATEGORY III

EXECUTIVE SUMMARY

Title: Water Diversion Screening

Applicant: California Department of Fish and Game
1416 Ninth Street
Sacramento, California 95814

Project Description and Primary Biological/Ecological Objectives:

The California Department of Fish and Game (DFG) requests funds to install suitable fish screens on selected water diversions. The screens will be constructed using the latest in fish screen technology and will meet the criteria established by the DFG and the National Marine Fisheries Service (NMFS) for screen structure and placement. There are four subprojects located on the Sacramento River, tributaries to the Sacramento River, and the Suisun Marsh.

Implementation of this proposal will result in reduced entrainment losses at water diversions of special status species, juvenile salmonids and other anadromous and resident fish species.

Project Approach and Schedule:

The DFG has identified water diversions that are considered to be a high priority for screening. The DFG will assist in design, select subcontractors and in some cases build and install the screens using DFG personnel at these sites. All necessary environmental documents would be prepared and required permits obtained during the planning process.

Project Justification:

The CALFED Bay-Delta Program has identified fish entrainment from unscreened or inadequately screened water diversions as a major stressor contributing to the decline of priority fish species. The proposed project would reduce entrainment and provide working examples of fish screen installations to promote future projects.

Budget Costs and Third Party Impacts:

The DFG is requesting $3,230,850 to fund the entire project. For screens constructed on private water diversions, cost shares in the form of contributions for construction, use of equipment, or providing labor will be required. The diversion owner will be requested to assist in operation and maintenance for the life of the fish screen. On DFG water diversions, the DFG will maintain the screens.

Applicant Qualifications:

The DFG has been actively constructing and maintaining fish screens since the early 1950s. The DFG has three screen shops that operate over 100 fish screens of various sizes and configurations. DFG personnel at these installations are skilled in all phases of fish screen construction and maintenance. DFG personnel have remained current with the latest screen technology through training courses and the establishment of a statewide fish screen committee.

Project Evaluation:

The efficiency of the fish screens will be inspected for compliance with current DFG and NMFS fish screen criteria. A final project report will be prepared and submitted upon completion of all the project tasks.

Local Support and Coordination with Other Programs:

There are hundreds of unscreened water diversions in the Ecosystem Restoration Program Plan (ERPP) study area. Local, State and Federal agencies as well as private landowners and water users are becoming increasingly aware of the need to reduce entrainment of fish in water diversions. This is particularly true with the increasing number of fish species being listed under State and Federal endangered species acts. It is important that the DFG take a leading role in screening priority water diversions as well as providing examples of the latest in fish screen technology for other programs to follow.

WATER DIVERSION SCREENING

Applicant: California Department of Fish and Game
1416 Ninth Street
Sacramento, California 95814

Type of Organization: State Agency

Tax Identification Number: 94-6001347

Technical and Financial Contact Person:

Mr. Phil Warner, Region 1
Department of Fish and Game
601 Locust Street
Redding, California 96001
Phone: (916) 225-2307 Fax: (916) 225-2381
E-mail: 107660.1322@compuserve.com

Participants/Collaborators in Implementation:

Water diversion owners and operators, permitting agencies, construction contractors, and DFG personnel will be involved in this project.

RFP Project Group Type:

Group 1 - Construction
Group 3 - Services (Demonstration Project)

PROJECT DESCRIPTION

SUBPROJECT 1: SMALL DIVERSIONS IN THE SACRAMENTO RIVER BETWEEN RED BLUFF DIVERSION DAM AND KESWICK DAM

Project Description and Approach:

To protect juvenile salmonids in a section of the Sacramento River especially critical for the endangered winter-run chinook salmon, the DFG's goal is to have screens installed on all small diversions in the section of river between Red Bluff Diversion Dam and Keswick Dam. To initiate an outreach program, the DFG is seeking funds to install two demonstration screens on previously unscreened or inadequately screened water diversions. Mr. Phil Warner of DFG Northern California-North Coast Region (Region 1) will supervise the design and construction of these screens. The water diversion owner will assist in operation and maintenance of the finished screen. The results of the demonstration fish screens will be used to encourage other private owners to participate in voluntary screening of their diversions. Overall project elements include:

* Develop a priority list for screening smaller water diversions on the upper Sacramento River between the Red Bluff Diversion Dam and Keswick Dam.
* Reduce fish entrainment associated with small water diversions on this critical reach for juvenile salmonids.
* Install fish screens on two candidate diversions.
* Evaluate the installations.
* Solicit funds and support for screening remaining diversions.

Project Area

The main stem of the Sacramento River between Keswick Dam and the Red Bluff Diversion Dam in Shasta and Tehama counties.

Proposed Scope of Work

Listed below are major incremental tasks or phases for completing the proposed program. A quarterly project status report will be prepared and circulated to the CALFED contract manager, the technical advisory team, any appropriate public agency representative and other interested parties. Each status report will include a brief description of the tasks completed, technical problems identified and resolved, and financial summaries. Within three months of the completion of the entire program, a final program report will summarize all major tasks, any accomplishments and recommendations for continuation of the screening of small unscreened diversions. Contract work described is expected to last approximately one year from initial funding.

1. develop priority list of small diversions which need screens

2. select the demonstration fish screen project

3. design the fish screen project

4. construct the fish screens

5. evaluate fish screen efficiency

6. execute a fish screen outreach project

SUBPROJECT 2: IMPROVEMENT AND UPGRADING OF DAMAGED SCREENS ON SIGNIFICANT SACRAMENTO RIVER SYSTEM DIVERSIONS

Project Description and Approach

Mill Creek Fish Screen

The DFG has operated a fish screen at the head of the Upper Mill Creek Diversion in Tehama County since about 1954. The present screen has been in service since 1970. The location is exposed to flood flows and the screen has been damaged on a number of occasions, most recently in January 1997. A new screen needs to be built behind the headgate. Mill Creek is one of the few streams left in the State that supports a population of spring-run chinook salmon, a candidate species for listing as endangered under the California Endangered Species Act (CESA). The $50,000 requested for this project would be used to purchase materials. The crew from the DFG Red Bluff Fish Habitat Improvement Shop would construct the screen.

Deer Creek Fish Screen

The DFG has operated the present fish screen at the South Stanford Vina Diversion on Deer Creek in Tehama County since 1969. An entirely new screen is needed at this site. Flood flows have changed the intake configuration of the diversion making the present screen difficult to operate. Deer Creek is also one of the few streams left in the State that supports a run of spring-run chinook salmon. The $30,000 requested for this project would be used to purchase materials. The crew from the DFG Red Bluff Fish Habitat Improvement Shop would construct the screen.

Lake California Pumps Fish Screen

The DFG has operated a fish screen at the Lake California Pumps since 1981. The pumps are on the Sacramento River just below the mouth of Cottonwood Creek. The present screens were installed on the face of the pump gallery and are difficult to maintain and have been damaged by floods on several occasions. A new fish screen installation is needed which will be built to withstand flood flows. The screen surface will be constructed with stainless steel wedgewire for strength and low maintenance. A sheet pile coffer dam will be required so that construction can be accomplished in the dry. Engineering and contract assistance will be required. The screen would cost $110,000.

Red Bluff Fish Habitat Improvement Shop Screen Construction and Maintenance Project

The Red Bluff Fish Habitat Improvement Shop now operates and maintains 13 fish screens and nine fishways in the central valley. The present operating budget for this installation does not allow for the construction or major rebuilding of these types of fish protection structures. The present budget allotment is used just to keep the shop operating while maintaining screens and fishways at a point of short-term use but without necessary long-term maintenance (the operational life of a fish screen is about 20 years before major rebuilding is needed). An augmentation of $50,000 to the shop's operating budget would allow the construction or rebuilding of several small screens or fishways each year at a cost substantially less than required for an outside contractor. It would also allow other fish habitat improvement projects such as spawning gravel placement.

Project Area

The Sacramento River and tributaries in Shasta and Tehama County that support runs of chinook salmon and steelhead.

Proposed Scope of Work

The operating lives of three large fish screens maintained by DFG Red Bluff Fish Habitat Improvement Shop are coming to an end. The project would consist of replacing these screens by the shop crew or by contract using the latest fish screen technology. Several smaller screens and fishways operated by this installation would be rebuilt.

SUBPROJECT 3: DIVERSION SCREEN AT UPPER BUTTE BASIN WILDLIFE AREA ON BUTTE CREEK

Project Description and Approach

The DFG is working on a project to transfer the point of use of several water rights that we currently hold in Butte Creek. The majority of these water rights would be used for instream beneficial uses, primarily for spring- and fall-run chinook salmon and steelhead trout. A minor portion would be transferred to a different point of land use on the Little Dry Creek Unit of the Upper Butte Basin Wildlife Area (UBBWA). The transfer of water for instream use and the new point of diversion is contingent on the diversion being screened. This funding request is for the installation of a prefabricated off-the-shelf fish screen to be installed on a portable pump intake to be placed at the new diversion location. It is necessary to use a portable pump and screen that can be removed during flood periods.

Screening of the diversion will increase the survival of naturally produced steelhead trout and chinook salmon by preventing entrainment of juveniles in the diversion. The dedication of water for instream flow will increase the survival of all species in Butte Creek including salmon, steelhead, splittail and green sturgeon. This will result in greater abundance of the above species within the Bay-Delta ecosystem. Additionally, the screened diversion will provide a fish-friendly source of water for use on the UBBWA. This will greatly enhance our opportunity to provide for and develop wetland habitats on which many wildlife species depend including threatened and endangered species. The cost of the screen is estimated at $110,000.

Project Area

The project is located on the Little Dry Creek unit of the Upper Butte Basin Wildlife Area on Butte Creek, Butte County.

Proposed Scope of Work

The screen involves off-the-shelf technology which involves installation of manufactured parts with limited design costs.

SUBPROJECT 4: FISH SCREENS AT GRIZZLY ISLAND WILDLIFE AREA ON MONTEZUMA SLOUGH

Project Description and Approach

This proposal is for the funding of nine conical fish screens, five 36-inch diameter diversions on Montezuma Slough at the Grizzly Island unit and four 48-inch diameter diversions would be screened on the Joice Island unit also on Montezuma

Slough. Design drawings and all information needed to construct the project are being furnished under a DFG contract scheduled for completion in November 1997. The five screens on the Grizzly Island unit will screen water for 925 acres of seasonal wetlands and 500 acres of uplands. The four screens on Joice Island will screen water for 1,150 acres of wetlands and 450 acres of uplands.

The conical fish screen design has been used in the Suisun Marsh. Currently there are five in place on private lands sponsored by the Suisun Resource Conservation District. The Department of Water Resources is also using this design. The installation includes pilings for the screen, a headwall on the levee and a platform to store the screen when it is not in service. A computer system is used for opening and closing the control gate and monitoring the operation of the screen.

A boom truck is needed to remove screens from the water for cleaning and maintenance. During certain times of each year, the diversions are closed and the screens need to be pulled to extend their service life.

Montezuma Slough is designated as critical habitat for the listed delta smelt and winter-run chinook. Other fish species will also benefit from this project including Sacramento splittail, spring- and fall-run chinook salmon and striped bass. Screening will eliminate loss of these fish species through the diversions. In addition, migratory birds will benefit as screening will allow the DFG to flood, leach and drain the seasonal wetlands as needed to produce important winter habitat. Currently unscreened diversions have restrictions at certain times of the year.

Project Area

Grizzly Island Wildlife Area, Solano County

Proposed Scope of Work

The proposed project would install five 36-inch conical screens at $250,000 each and four 48-inch conical screens at $260,000 each. A boom truck would be purchased to maintain the screens for $50,000.

ALL PROJECTS

Expected Benefits

The projects would reduce mortality of fish due to entrainment in unscreened or inadequately screened diversions in the EERP study area. These fish include species listed or being considered for listing under State and Federal endangered species

acts. Economic benefits are expected since reduced juvenile losses would increase fish populations available to sport and commercial anglers. There will be increased reliability of water supply by reducing the risk of incidental "take" of listed species in water diversions. Increased public support for fish screening can be expected with the demonstration of working screens.

Background and Biological Justification

Losses of young fish to unscreened or inadequately screened water diversions have been identified as a major stressor contributing to the decline of the priority species and habitats. Mortality at water diversions can occur through injury, impingement, entrainment and increased vulnerability to predation.

Entrainment is the most significant stressor associated with unscreened diversions. From the source tributaries to the Delta, water diversions entrain millions of fish and other aquatic organisms from their source water bodies. Entrained fishes generally do not survive and are permanently removed from the source water. The DFG has long recognized the importance of screening water diversions and has installed numerous fish screens throughout California.

Monitoring and Data Evaluation

Screen installations will be inspected to make sure they are built to design specifications and meet DFG and NMFS screen criteria. The mechanical effectiveness of the screen cleaning system will be monitored. Approach and sweeping velocities will be measured in front of the screen face. An appropriate maintenance program will be established which will be reviewed on a regular basis.

Implementability

Fish screen technology has been developed that will be used to place screens on the water diversions identified in this proposal that will be durable and not restrict the diversion flow. Environmental documents and permits required for the installation of fish screens will be prepared. Water diversion operators have been contacted and have authorized installation of these screens.

Budget Costs

	Construction Contracts	Materials	Equipment	DFG Overhead*
SUBPROJECT 1:	$ 25,000	$0	$0	$ 4,750

Total DFG Labor Contributed: $34,000

Total Category III Request: $ 29,750

	Construction Contracts	Materials	Equipment	DFG Overhead*
SUBPROJECT 2:	$110,000	$130,000	$0	$45,600

Total DFG Labor Contributed: $82,000

Total Category III Request: $285,600

	Construction Contracts	Materials	Equipment	DFG Overhead*
SUBPROJECT 3:	$110,000	$0	$0	$20,900

Total DFG Labor Contributed: $10,000

Total Category III Request: $130,900

	Construction Contracts	Materials	Equipment	DFG Overhead*
SUBPROJECT 4:	$2,290,000	$0	$50,000	$444,600

Total DFG Labor Contributed: $25,000

Total Category III Request: $2,784,600

Total DFG labor contributed as cost share:

$151,000

Grand Total Requested From Category III

$3,230,850

*DFG overhead at 19%

Schedule Milestones

If funding is secured, planning for fish screen installation will begin immediately. Environmental documents and permits will be obtained within three months. Installation of fish screens will be done as soon as construction contracts can be completed and water conditions and irrigation schedules allow for construction. Construction of the screens will be completed within two years of funding approval.

Applicant Qualifications

The DFG has been actively constructing and maintaining fish screens since the early 1950s. The DFG has three screen shops that operate over 100 fish screens of various sizes and configurations. DFG personnel at these installations are skilled in all phases of fish screen construction and maintenance. DFG personnel have remained current with the latest screen technology through training courses and the establishment of a statewide fish screen committee. The planning and supervision of these fish screen projects will be done by DFG personnel with appropriate knowledge and skills.

Standard Terms and Conditions

Interagency Agreement standard clauses and the Nondiscrimination Compliance Statement are attached.

Item 3

Agreement No._____

Exhibit_____

STANDARD CLAUSES -
INTERAGENCY AGREEMENTS

Audit Clause. For contracts in excess of $10,000, the contracting parties shall be subject to the examination and audit of the State Auditor for a period of three years after final payment under the contract (Government Code Section 8546.7).

Availability of Funds. Work to be performed under this contract is subject to availability of Category III funds.

Interagency Payment Clause. For services provided under this agreement, charges will be computed in accordance with State Administrative Manual Section 8752 and 8752.1.

Termination Clause. Either State agency may terminate this contract upon 30 days advance written notice. The State agency providing the services shall be reimbursed for all reasonable expenses incurred up to the date of termination.

Item 8

NONDISCRIMINATION COMPLIANCE STATEMENT

COMPANY NAME

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME

DATE EXECUTED

EXECUTED IN THE COUNTY OF

PROSPECTIVE CONTRACTOR'S SIGNATURE

PROSPECTIVE CONTRACTOR'S TITLE

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME