

Work Plan for Fiscal Year 2002

February 6, 2002

I Program Title Anadromous Fish Screen Program CVPIA Section 3406 (b)(21)

II Responsible Entities

	Agency	Staff Name	Role
Lead	USFWS	William O'Leary Ryan Olah Chris Waynar	Acting Program Manager Compliance Administrative Support
Co-lead	USBR	William O'Leary Debbie Coleman William Dutton	Acting Program Manager Administrative Support Project Engineer

III Program Objective for FY 2002

The primary objective of the Anadromous Fish Screen Program (AFSP) is to protect juvenile chinook salmon- all runs, steelhead trout, green and white sturgeon, striped bass and American shad from entrainment at priority diversions throughout the Central Valley. Section 3406(b)(21) of the Central Valley Project Improvement Act (CVPIA) requires the Secretary of the Interior to assist the State to develop and implement measures to avoid losses of juvenile anadromous fish resulting from unscreened or inadequately screened diversions on the Sacramento and San Joaquin rivers, their tributaries, the Delta, and the Suisun Marsh. In addition, Goal 3 of the Ecosystem Restoration Program's Implementation Plan (ERP) (7/18/01, page 29, Goal 3), states "Maintain and/or enhance populations of selected species for sustainable commercial and recreational harvest consistent with the other ERP Strategic Goals." Discussion of this goal indicates restoration for all the fish species, except striped bass, that the AFSP would also help protect.

A. Develop and implement measures to avoid losses of juvenile anadromous fish resulting from unscreened or inadequately screened diversions on the Sacramento

River, San Joaquin River, their tributaries, the Delta, and the Suisun Marsh.

IV Status of the Program.

The AFSP serves two functions in its efforts to protect juvenile anadromous fish. First, the Program is a source of funds to diverters that want to install fish screens on their diversions. Funds are provided on a priority basis, as discussed in the AFSP document, Program Description. Second, an AFSP Technical Team has been assembled, containing experts representing various appropriate federal and state resource and regulatory agencies, to provide fish screen development guidance to the diverters, and their consultants, throughout the various project phases. At this time, the AFSP continues to perform both of these functions.

The AFSP has worked with nine major diverters (diversions from 65 cubic feet/second ((cfs)) up to 830 cfs) and five small diverters (totaling 93 cfs) in installing civil engineering works allowing them to take water for agricultural purposes, while leaving the juvenile fish in the waterway, unharmed. Three of these diversions still need to be evaluated to ensure that they meet fish screen criteria before they are considered completed. Completion of these projects has also resulted in 13 additional diversions and four dams being removed from the water and two diversions being relocated to better sites in regard to the fish, all while making these diversions more efficient and fish friendly. Currently, the Program is involved with six diversions (including one agricultural diverter of 1000 cfs and one municipal and industrial diverter with two separate diversions) in various phases of the project, i.e. from feasibility study to construction.

Lack of secure funding is the biggest problem of interested diverters in becoming involved in a project that culminates in installing a fish screen in front of their diversions.

Construction projects of this sort are phased in, starting with a feasibility study, then preliminary design (in conjunction with preliminary preparation of environmental documents, etc.), final design (in conjunction with completion of appropriate documents), and construction. Thus, the diverter needs to commit to performing the initial phases, for which he/she will have monetary responsibility if preliminary results are not adequately encouraging to continue the project. Also, the diverter is committing him/herself to an action which will take place several years in the future, without any idea of the total cost of the project, or from where the funds will be coming. Finally, upon completion, the diverter is solely responsible for the operation and maintenance of the fish screen project.

The AFSP is allowed to provide up to a maximum of 50% of the total cost of a fish screen project. The situation may improve somewhat for the diverter since the AFSP is being integrated with CALFED, a source of State and potential Federal funds, this fiscal year; thus requiring the diverter to become involved with fewer agencies in search of needed funds.

Uncertain funding in future years may affect projects currently under construction for which the AFSP has previously provided funding. If the project has to be demobilized because of a funding shortage, the project will generally cost more since remobilization adds to the cost; meanwhile, the diverter has to be able to divert water during the construction phase. Finally, until the project is completed, juvenile fish are still being taken.

V FY 2001 Accomplishments

Construction was initiated on three fish screen projects during FY01. The Banta- Carbona Irrigation District diverts water from the San Joaquin River, via a canal. Delta smelt, a federally listed species, could be diverted at this site and therefore, the screen was designed to meet criteria protective of this species. Because of the physical situation of the river at this location and the pumping plant located at the end of a canal, the decision was made to construct a vee shaped screen in the canal, and include a bypass and pump to translocate the fish back to the river. The redesign of the facility for Delta smelt, over former preliminary designs and new design approach, substantially increased the project's cost.

The other two projects under construction involve diversions by the City of Sacramento, a municipal and industrial water purveyor. First, the City needed to upgrade its diversion from the Sacramento River. The original structure did not provide the ability to install fish screens on the structure. Thus, for this reason and several others, the diversion is being relocated downstream and will be connected to the original water treatment plant upon completion. This diversion is considered to be within the area in which Delta smelt may be found, therefore this diversion is designed to meet the appropriate Delta smelt fish screen criteria. The AFSP contributed funds to the earlier phases of this project and has contributed funds towards its construction.

The other project under construction by the City of Sacramento is an enlargement of its diversion from the American River. As with other projects in which the AFSP is involved, it is working closely with the City and its consultants. This diversion is being doubled in size to enable the City to divert the amount of water it originally intended, and will be screened to prevent take of listed species. The AFSP is providing cost-share funding for that

portion of the project equal to its maximum historical diversion rate. For both screen projects, cost-share funding is only being provided for features of the projects required for screening and protecting fish.

Finally, the AFSP funded an Agreement with the University of California, Davis to perform certain fish treadmill studies on fish of particular interest to the Program. Upon completion of the Agreement, the University intends to have completed preliminary or final suggestions/recommendations, in report form, on refinements for present fish screen design, flow and operational criteria to improve protection of all studied species at different sizes, temperatures and time of day, and at different approach and sweeping velocity combinations.

VI Tasks, Costs, Schedules and Deliverables.

A. Narrative Explanation of Tasks.

1. Program Management- stated, the function of the AFSP is to protect juvenile anadromous fish specified in the CVPIA. Protection is provided by encouraging and facilitating the construction of fish screens and other facilities that will avoid or minimize entrainment of the juvenile stage of the specified species. However, the AFSP is ongoing and is involved with projects beyond those discussed above. Costs for this aspect of the AFSP involves salaries and benefits for lead and coordinator Program Managers, administrative support, engineers and concomitant overhead costs (see Tables below). Some of the management tasks for the AFSP include design review, developing and tracking budgets, reviewing invoices, coordinating Technical Team actions, preparing grants, and coordinating environmental compliance. Estimated Cost=\$ 474,000
- 1.1 As discussed in priority 6 of the ERP's Restoration

Priorities for the Sacramento Region, the AFSP will continue the work on ongoing fish screen projects currently supported by the CVPIA and CALFED and conduct studies to improve knowledge of implications of fish screens on fish populations. The AFSP has worked with the fish screen projects discussed below, but will also potentially work on additional projects resulting from integration with CALFED. To date, eight million dollars have been identified for the Program from the Restoration Fund. Four hundred seventy-four thousand dollars (\$ 474,000) are needed for program management and hired expertise (see table A. CVPIA Program Budget), and the remaining \$7,526,000 is intended to be used for cost-share funding of the projects discussed below. Additional funding provided to AFSP for projects through the CALFED solicitation process will be prioritized according to the established CALFED procedures. Meanwhile, diverters will continue to be contacted to determine if they would like to receive help in placing a fish screen in front of their diversions. Those diverters who either agree to accept or request this help, will be assisted by the AFSP to construct a fish screen that will meet their diversion needs and meet regulatory agencies' fisheries protection needs. This is accomplished by having the AFSP Technical Team and Program Manager meet with the diverters and their consultants/contractors as often as needed to discuss problems and solutions. The following tasks (projects), except for Program Management, are in priority order. All the following address ongoing projects requiring additional funds.

2. Princeton- Codora- Glenn/Provident Irrigation District - preliminary evaluation indicates that the fish screen may not meet regulatory agency criteria. Funds are needed to analyze the situation to

determine what needs to be done to bring this screen into compliance, to perform the needed work, and finally to evaluate the screen to enable the fish regulatory agencies to determine that it performs satisfactorily. Additional modifications on this diversion, such as placement of baffles behind the screens may be found to be necessary and expensive since most, if not all, of the work on this diversion would be performed in the river. The work would be performed by a contractor of the District, with oversight and review by the AFSP Technical Team. Estimated Cost=\$ 125,000

3. Sutter Mutual Water Company - will initiate final design for its fish screen project in FY02. This diversion, which diverts about 1,000 cfs, is currently the largest unscreened diversion from the Sacramento River; thus, the urgency in screening it. During this phase of the project, the Company will prepare final environmental documents, initiate and complete the final design and specifications for the facility, and prepare the post-construction evaluation and assessment plan and the long-term operation and maintenance plan. Currently, a cost-share funding partner is not yet available for the final design phase of this project, therefore, the AFSP intends to provide full funding for this phase. Representatives of the California Department of Fish and Game have publicly stated that the State will provide full cost-share funds for this project. Since there will be several years for this diverter to obtain cost-share funds and the State has indicated its intention, there is ample opportunity to ensure that the AFSP does not provide more than 50% of the total cost of the project, i.e. the sum of all phases. Meanwhile, the project will be able to continue and not have to demobilize, as would be the case, should full funding not be made available.

- Construction of this large fish screen project will ultimately be fully cost shared and will take several years to complete. Estimated Cost=\$ 2,500,000
4. Natomas Mutual Water Company - will initiate final engineering designs and permitting in FY02. This project will likely consist of consolidating five existing unscreened diversions into two screened diversions for a total of about 630 cfs on the Sacramento River. Currently the AFSP intends to provide much of the funding for this phase since only a portion of non-Federal cost share funds are available. Funding in the subsequent construction phases will be cost shared such that the AFSP will not provide more than 50% of the total cost of the project. Estimated Cost=\$ 2,290,000
 5. Reclamation District 108 - is conducting a reconnaissance investigation for screening three of their pumping plants along the Sacramento River. Options include screening the three individual facilities for a total of 377 cfs, or consolidating the facilities into a 260 cfs screened diversion. The consolidated alternative would require the construction of new and more efficient canal systems interconnecting the three separate diversions, thereby requiring less diversions to meet the same water needs. Currently the AFSP intends to provide full funding for the final design and permitting phase of the project since cost share funds are not yet available. Funding in the subsequent construction phases will be cost shared such that the AFSP will not provide more than 50% of the total cost of the project. Estimated Cost=\$ 1,380,000
 6. Meridian Farms Water Company - diverts water from the Sacramento River to irrigate 10,000 acres in Sutter County from three diversions (sized at 100 cfs, 50 cfs and 40 cfs). This Company has been

working with the AFSP with the intention of consolidating these diversions, if possible, and installing a fish screen on the new diversion. This project will be ready to go into final design and preparation of final environmental documents in FY02.—Estimated Cost=\$ 300,000

7. Pleasant Grove- Verona Mutual Water Company - diverts water from the Sacramento River via two diversions and the rest of its water from the Natomas Cross Canal via three diversions, to irrigate about 7,300 acres of farm land in Sutter County. (During low water years, Sacramento River water is pumped into the Cross Canal.) This Company has been working with the AFSP with the intention of consolidating diversions, considering relocating diversion from the Cross Canal to the River and installing a fish screen on the final product(s). This project will be ready to go into final design and preparation of final environmental documents in FY02. Estimated Cost= \$ 600,000
8. City of Sacramento - two diversions, one from the Sacramento River- which is being relocated downstream, the other from the American River (Fairbairn Water Treatment Plant)- which is being enlarged to meet its originally intended diversion capability, initiated construction during FY01. The Cooperative Agreement recognizes that these projects will cost approximately \$ 42,000,000; however, \$10,002,430 was agreed to be the AFSP cost- share, attributable to the fish screen aspects of this project. The original Agreement provided the City with \$ 6,999,930 of FY99 funds and recognized that, should funds be available, up to an additional \$3,002,500 would be provided to the City. During FY01 no additional federal funds were available and the California Department of Fish and Game volunteered to provide \$ 700,000 of its Proposition

204 funds toward this project. This is the amount of funding identified in the Agreement to be made available in FY01 to meet project costs identified in the work schedule. The work is scheduled to continue until June 2004. An additional \$ 2,302,500 is needed to provide the \$10,002,430, tentatively obligated in the Agreement. If funds are not available this fiscal year, the City should be made the AFSP's top priority for FY03 funds, not only because our Agreement states that additional funds would be provided when they become available, but also because it indicates to other unscreened diverters that we fully support our Agreements. However, if the anticipated funds for this Program, and the estimated costs of the projects are correct there should be \$331,000 remaining this fiscal year. These funds can be provided to the City, thus, leaving \$1,971,500 needed to fulfill the original FY01 Agreement. Estimated Cost= \$ 331,000

Total CVPIA Estimated Cost=\$

8,000,000

Additional Funding Needs.

Princeton- Codora- Glenn/Provident Irrigation District - as mentioned above in section VI.A.1, the modification(s) needed to make this fish screen project work appropriately will be performed in the water. Work performed in the water may be costly. Additional funds will probably be required to resolve flow problems identified above.

City of Sacramento - its projects on the Sacramento and the American rivers are in the continuing construction phase. These projects were anticipated to be completed during the winter of 2003, but currently are ahead of schedule. Once completed the City will be required to satisfactorily perform and complete post-construction evaluation tests on each of the projects. As

mentioned in subsection A.7, immediately above, the funding provided to the City has been short of the cost-share funds identified as appropriate to be provided to the City. Thus, rather than take on any new fish screen projects it would be appropriate to fund projects currently involved with the AFSP. Any available additional funds are recommended to be directed to funding this grantee's existing Agreement.

In addition to the ongoing projects discussed above, and their continuation to completion in out years, there are several new projects the AFSP has been asked to participate in, but has not for lack of cost-share funds. Several project proponents have been in contact with the AFSP. M & T Ranch is one such project proponent. This diverter installed fish screens several years ago, but now has a problem with river meander causing gravel bank formation affecting the sweeping and approach velocities of the screens. This diversion helps supply water to the Ranch, and a State and a Federal wildlife refuge. The ranch is not only looking for short-term aid to remove the banks, but also long-term aid to study the meander and bank formation to determine how best to maintain water diversion capability when the waterway is meandering.

B. Schedule and Deliverables.

#	Task	Dates		Deliverable
		Start	Complete	
2	Princeton- Codora- Glenn/Provident I.D.	10/01/01	06/30/02	Fish screen that meets regulatory agencies' criteria/concerns
3	Sutter Mutual Water Co.	10/01/01	09/30/03	Final environmental documentation, final design of fish screen project
4	Natomas Mutual Water Co.	ongoing	9/30/02	Final environmental documentation, final design of fish screen project
5	RD108	10/01/01	9/30/02	Final environmental documentation, final design of fish screen project
6	Meridian Farms Water Co.	11/01/01	09/30/02	Final environmental documentation, final design of fish screen project
7	Pleasant Grove/Verona Mutual Water Co.	11/01/01	09/30/02	Final environmental documentation, final design of fish screen project
8	City of Sacramento	ongoing	11/30/03	Completion of two M&I diversions, ready for post-construction evaluation tests

Explanatory Notes: *A.2, A.3,A.4, A.5, A.6 - in the out years the deliverable will be diversions with fish screens that meet regulatory agencies' criteria/concerns. Accurate schedules cannot be provided until final designs are successfully completed, but a reasonable estimate would be two years beyond the final design completion date.

Schedule and Deliverables - Additional Funding Needs.

#	Task	Dates		Deliverable
		Start	Complete	
2	Princeton- Codora-Glenn/Provident I.D.	ongoing	6/30/02	A fish screen that meets regulatory agencies' criteria/concerns
8	City of Sacramento	ongoing	11/30/03	Agreement stipulates that the City would receive \$ 2,302,500, if available

Explanatory Notes: A.1.1 is undergoing evaluations that will indicate what will need to be done to make the screen meet regulatory agencies' criteria

C. Summary of Program Costs and Funding Sources

#	Task	Total Cost	Funding Sources		
			RF	W&RR	Prop 204
A.1	PCG/P I.D.	\$ 125,000	\$ 125,000	\$ 0	\$ 0
A.2	Sutter Mutual Water Co.	\$ 2,500,000	\$ 2,500,000	\$ 0	\$ 0
A.3	Natomas Mutual Water Company	\$ 2,290,000	\$ 2,290,000	\$ 0	\$ 0
A.4	Reclamation District 108	\$ 1,380,000	\$ 1,380,000	\$ 0	\$ 0
A.5	Meridian Farms Water Co	\$ 300,000	\$ 300,000	\$ 0	\$ 0
A.6	Pleasant Grove- Verona M.W. Co.	\$ 600,000	\$ 600,000	\$ 0	\$ 0
A.7	City of Sacramento	\$ 331,000	\$ 331,000	\$ 0	\$ 0
A.8	Program Management	\$ 474,000	\$ 474,000	\$ 0	\$ 0
Total Program Budget		\$ 8,000,000	\$ 8,000,000	\$ 0	\$ 0

Explanatory Notes: All available California Department of Fish and Game Proposition 204 funds have been obligated to the AFSP though FY 01.

Program Costs and Funding Sources - Additional Funding Needs.

#	Task	Total Cost	Funding Sources		
			RF	W&RR	Prop 204

			RF	W&RR	Prop 204
A1.1	PCG/PID	\$UNKNOWN*	\$ 0	\$ 0	\$ 0
A7.1	City of Sacramento	\$1,971,500*	\$ 0	\$ 0	\$ 0
Total Program Budget		\$ 1,971,500	\$ 0	\$ 0	\$ 0

*Sources of funding are unknown at this time.

D. CVPI A Program Budget.

#	Task	FT E	Direct Salary and Benefits Costs	Contracts Costs	Miscellaneous Costs	Administrative Costs	Total Costs
A8	Program	- -					
	USFWS	0.7	\$75,762	\$	\$ 0	\$ 20,238	\$ 209,000
	USBR	1.5	\$	\$ 0	\$ 0	\$ 0	\$ 265,000
	Projects	0.0	\$ 0	\$ 7,526,000	\$ 0	\$ 0	\$ 7,526,000
	Total by	2.2	\$340,762	\$ 7,639,000	\$ 0	\$ 20,238	\$ 8,000,000

Explanatory Notes: * National Marine Fisheries Service Engineer

** is comprised of partial time of 2 staff, and includes funds for engineering project review, contract preparation, travel and administration

CVPI A Program Budget - Additional Funding Needs.

#	Task	FT E	Direct Salary and Benefits Costs	Contracts Costs	Miscellaneous Costs	Administrative Costs	Total Costs
A7.	City of	0.0	\$ 0	\$ 1,971,500	\$ 0	\$ 0	\$ 1,971,500
A1.	PCG/P I.D.*	0.0	\$ 0	UNKNOWN	\$ 0	\$ 0	\$ 0
	Total by	0.0	\$ 0	\$ 1,971,500	\$ 0	\$ 0	\$ 1,971,500

Explanatory Notes: * This District's diversion may need additional work to meet current fish screen criteria. At this time it is not possible to say what the cost might be since the AFSP is still evaluating the situation to determine what potential modifications/repairs might be needed to ameliorate the current situation.

E. Quarterly Obligation/Expenditures.

#	Task	Quarter 1	Quarter 2	Quarter 3	Quarter 4
A8	Program Management	\$ 118,500	\$ 118,500	\$ 118,500	\$ 118,500
A1-A7	Projects	\$ 1,881,500	\$ 1,881,500	\$ 1,881,500	\$ 1,881,500
Total CVPIA Budget by Quarter		\$ 2,000,000	\$ 2,000,000	\$ 2,000,000	\$ 2,000,000

Explanatory Notes: Due to the variability of the timing of project tasks within FY02, calculating one-quarter of the total funds per quarter provides as good an estimate as possible at this time.

Quarterly Obligation/Expenditures - Additional Funding Needs.

#	Task	Quarter 1	Quarter 2	Quarter 3	Quarter 4
A.1	Princeton-Codora-Glenn/Provident	Unknown **	Unknown	Unknown	Unknown
A.5	City of Sacramento	\$ 244,625*	\$ 575,625	\$ 575,625	\$ 575,625
Total CVPIA Budget by Quarter		\$ 244,625	\$ 575,625	\$ 575,625	\$ 575,625

Explanatory Notes: * This project is continuing from previous fiscal years and will continue into the next two fiscal years. The City could use the \$ 1,971,500 identified in this Annual Work Plan as soon as the funds become available

** Ongoing evaluations will indicate what screen modifications are needed for the facility to comply with regulatory agency criteria, and at what additional cost.

VII Future Years Commitments/Actions.

The long-term effects of the projects presented and discussed in this Annual Work Plan are:

1) It is not possible to determine if any future funding commitment is needed for Princeton-Codora-Glenn/Provident Irrigation District at this time. An investigation is currently underway to determine what is needed to enable this diversion's fish screens to meet criteria. If additional funds are needed it would be likely that they would be needed during FY02 rather than in future years. This District diverts in excess of 600 cfs and the total project cost is in excess of \$ 11,000,000. Providing the funding need to complete this project, i.e., to enable this diversion to meet regulatory agencies' concerns/criteria, if funds are needed, should be a prime concern of CVPIA managers.

2) Sutter Mutual Water Co. will be an expensive project because it involves a large diversion, about 1,000 cfs. In addition, it may involve relocation , new pumps, etc. After the final design phase is completed in FY02 the next phase is construction. This project will probably have a total construction cost in excess of \$ 20 million, with an anticipated completion date of Fall 2004.

3) Meridian Farms is a relatively smaller project (190 cfs). However, consolidation of three diversions is being considered, which should be less expensive than separately screening each of the diversions, but more expensive than screening one existing diversion of 190 cfs. At this relatively early stage of development, a rough estimate of the total cost of construction for this project is about \$ 4 million.

4) Pleasant Grove-Verona Mutual Water Company is another relatively small diversion (about 158 cfs). This project potentially involves consolidating several diversions that take water from different water sources , i.e. the Sacramento River and the Natomas Cross Canal. At this relatively early stage of development, a rough estimate of the total cost of construction for this fish screen project is about \$ 4.5 million.

5) Providing the additional \$ 2,302,500, addressed in this Annual Work Plan, to the City of Sacramento would demonstrate Department of Interior's (DOI) commitment to its Agreements. In turn, the City of Sacramento would use these funds to help complete its two municipal and industrial diversions with appropriate fish screens.

6) Natomas Mutual Water Company has a screen project involving the consolidation of three diversions (on the Sacramento River and Natomas Cross Canal), totaling about 560 cfs, into one or two screened diversions. Total cost of the project is estimated at about \$ 22 million with an anticipated construction completion date of Summer 2004.

7) Reclamation District 108 has a screen project that is investigating the screening of 3 individual diversions on the Sacramento River (377 cfs total) or consolidating them into one screened diversion with a more efficient land side conveyance system (260 cfs total). Total cost of the project is estimated at about \$15 million with an anticipated construction completion date of Summer 2004.

Many diverters are concerned that regulatory agencies may more strongly enforce listed species regulations to cause more diversions to become adequately screened. In addition, many of these diverters state that they do not have the funds needed to place fish screens in front of their diversions. The diverters are concerned with initiating fish screen projects with no funding source to complete the projects, leaving them to finish their projects. Thus, before they are willing to initiate a fish screen project, they want assurance that the funding source is committed.