

# Draft CVPIA Fiscal Year 2009 Annual Work Plan

*December 10, 2008*

## **Program Title**

Anadromous Fish Screen Program - CVPIA Section 3406 (b)(21)

## **Responsible Entities**

<b>Staff Name</b>	<b>Agency</b>	<b>Role</b>
Dan Meier	USFWS	Lead
Tracy Slavin	USBR	Co-Lead

## **Program Goals and Objectives for FY 2009**

The major Anadromous Fish Screen Program (AFSP) objectives are:

- (A) To protect juvenile anadromous fish including Chinook salmon, steelhead trout, and green and white sturgeon from entrainment at priority water diversions throughout the Central Valley.
- (B) To assess the potential benefits of fish screening and determine the highest priority diversions for screening.

Section 3406(b)(21) of the Central Valley Project Improvement Act (CVPIA) requires the Secretary of the Interior to assist the State of California in developing and implementing 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 Sacramento-San Joaquin Delta, and Suisun Marsh. All AFSP projects also contribute to the primary goal stated in the Anadromous Fish Restoration Plan (AFRP), as defined under Section 3406(b)(1) of CVPIA, which requires the Department of the Interior to make all reasonable efforts to double natural production of anadromous fish in Central Valley streams.

The AFSP Program Description (January 1999) outlines the AFSP program purpose, scope, organization, and prioritization guidelines. The guidelines for prioritizing AFSP funded projects include consideration of biological benefits, size and location of the diversion, project cost, and availability of cost-share funding. In addition, current AFSP fish screening project priorities are coordinated with CALFED to support of the goals and objectives of CALFED's Ecosystem Restoration Program (ERP).

AFSP fish screen projects are consistent with Goal 3 of the CALFED ERP Stage 1 Implementation Plan (8/1/01, Page 22) “to maintain and/or enhance populations of selected species for sustainable commercial and recreational harvest, consistent with the other ERP Strategic Goals”. By protecting fish from entrainment, the AFSP enhances anadromous fish out-migrant success, thereby enhancing the commercial and recreational harvest of these species. AFSP activities also support the CALFED ERP Draft Stage 1 Implementation Plan (page 61) objective to: “... conduct studies to improve knowledge of implications of fish screens for fish populations.” The AFSP is currently coordinating with CALFED as it develops an ERP Draft Stage 2 Implementation Plan.

In past years, the CALFED ERP Program has provided the majority of non-federal cost-share funds for the AFSP fish screen project participants. The CALFED funds contribute to the required 50 percent minimum non-federal cost share for AFSP funded fish screen projects. Pursuant to Section 3406(b)(21) of CVPIA, the AFSP can only provide up to 50% of the cost share of a fish screen project. Representatives of the CALFED ERP have indicated that future CALFED funding for fish screens will be reduced from historical levels. In the near term, CALFED is focusing its fish screen related efforts on planning activities, and support for obtaining fish entrainment monitoring data at unscreened diversions.

### ***Status of the Program***

Currently, there are approximately 750 unscreened agricultural diversions in the Sacramento River system, 950 in the San Joaquin River system, 2,500 in the Sacramento-San Joaquin Delta, and 360 in the Suisun Marsh basin. Since 1994, the AFSP has assisted irrigation districts and water companies with fish screening at 24 priority diversions ranging from 17 cubic feet/second (cfs) up to 960 cfs. Cumulatively, the AFSP has cost shared on fish screen projects resulting in the screening of over 4,500 cfs.

The AFSP provides assistance to diverters through two primary means. First, the AFSP, comprised of experts from federal and State agencies, provides fish screen design review and technical guidance to the diverter and their consultants throughout a project. The AFSP may also provide funding support to diverters to install fish screens on their diversions.

The AFSP has provided significant funding and technical resources that are essential in implementing fish screen projects. Lack of adequate funding is often an impediment to diverters in constructing a fish screen for their unscreened diversion(s). Fish screen projects are typically complex projects that are constructed in phases over several years. The key project phases are typically a feasibility study, preliminary design, final design, and construction. There are also significant permitting and environmental compliance requirements that must be met. Upon completion of the project, the diverter becomes the owner of the constructed facilities and is solely responsible for the operation and maintenance of the fish screen.

The AFSP is currently providing technical assistance (design, environmental, and permitting) for several large fish screen projects which have not yet secured needed construction funding from

federal and non-federal funding sources. These fish screen projects include Natomas Mutual, Meridian Farms, Pleasant Grove-Verona, Patterson Irrigation, RD 2035 and Yuba City. The AFSP has indicated to these project applicants that additional construction funding from AFSP may not be available, and that any federal funding, would be contingent on the applicant securing matching non-federal cost share funding. Meridian Farms has secured funding to construct Phase I of their fish screen project (Grimes fish screen) and this project is expected to be completed in calendar year 2008. AFSP is currently providing oversight of construction activities for the Meridian Farms Phase I Fish Screen project.

A key objective of the AFSP is to assess the potential benefits of fish screening and to determine the highest priority diversions for screening. To this end the AFSP is collecting fish entrainment data in 2008 and is implementing additional fish entrainment monitoring in 2009. In addition, the AFSP is proposing to support screen related research in 2009 that will help to determine which diversions are most likely to entrain fish and will assess whether there are lower cost options for minimizing fish entrainment through use of behavior devices at some diversion locations rather than use of more expensive positive barrier screens.

### ***FY 2008 Accomplishments***

Accomplishments in FY 2008 included the following:

1. Completed construction of the RD 108 Poundstone Pumping Plant Fish Screen project to screen a 300 cfs diversion on the Sacramento River, in Sutter County approximately 45 miles northwest of Sacramento County. This fish screen project protects out-migrating spring, fall, and winter-run Chinook salmon and Central Valley steelhead as well as resident game and non-game fish from entrainment. This project consolidated three existing unscreened diversions into one new screened facility. (Objective A)
2. Continued to support fish screen design, environmental compliance and permitting activities for the Natomas Mutual Water Company Fish Screen consolidation project located in Sacramento County. This project would consolidate five diversions totaling 630 cfs into two screened diversions on the Sacramento River. (Objective A)
3. Continued to support fish screen design, environmental compliance and permitting activities for the Meridian Farms Water Company Fish Screen consolidation project in Sutter County for three existing diversions totaling 165 cfs on the Sacramento River. Construction of the Phase I project (35 cfs Grimes Diversion) was initiated in 2008. (Objective A)
4. Continued to support fish screen design, environmental compliance, and permitting activities for the Reclamation District 2035 Fish Screen project located north of the City of Sacramento to screen a 400 cfs diversion on the Sacramento River. (Objective A)
5. Continued to support fish screen design, environmental compliance and permitting activities for the Patterson Irrigation District Fish Screen to screen a 190 cfs diversion on the San Joaquin River. Partial construction funding was provided in 2008. (Objective A)

6. Continued to support fish screen design, environmental compliance and permitting activities for the City of Yuba City Fish Screen project in Yuba County for a 61 cfs municipal diversion on the Feather River. Partial construction funding was provided in 2008. (Objective A)
7. Participated in and supported CALFED ERP Fish Screen Workshops to enhance agency coordination on fish screen projects and to address key fish screening issues including project funding and priorities, permitting, and long-term operations and maintenance of fish screens. (Objectives A and B)
8. Initiated a four year screening and monitoring program in partnership with the Family Water Alliance and funded by AFSP and CALFED ERP. This program includes collection of fish loss data prior to installation of fish screens, in order to assess the biological benefits of fish screening and to help prioritize future fish screening efforts. The 2008 activities included site selection for three first-year projects which will be monitored for fish entrainment starting in Spring 2009. (Objectives A and B)
9. In 2008, the AFSP conducted fish loss monitoring at an unscreened diversion (northern diversion) at Feather Water District. A Biological Opinion issued by NMFS requires screening of two diversions (northern and southern) operated by FWD. FWD had requested federal cost share funding from the AFSP to screen these two diversions. This monitoring is being conducted by AFSP to assess the anticipated fishery benefits of screening the Feather Water District diversions, and to determine what priority AFSP should give to providing cost share funding for construction of these fish screens. The monitoring is occurring from April through November of 2008, and a report of the results will be available in December 2008. (Objective B)
10. In 2008, the AFSP continued support of a literature search and data analysis of fisheries losses at unscreened diversions within California and the Pacific Northwest. This effort will be completed in calendar year 2008 with a final report available in December 2008. The results of the literature search and data analysis will be used, in conjunction with field monitoring results, to help set AFSP fish screen priorities. (Objective B)

**Table 1. FY2009 Tasks, Costs, Schedule and Deliverables**

Task or Subtask Number	Name of Activity	FTE's	Description of Activity	Completion Date	Total Cost	Anticipated Funding Source RF	Anticipated Funding Source WRR
<b>1.1</b>	<b>Program Management</b>	<b>1</b>					
1.1.1		1	U.S. Fish and Wildlife Service; Provides leadership and overall management of the Anadromous fish Screen Program (AFSP), including oversight of the AFSP Technical Team.	9/30/08	\$200,241	\$200,241	\$0
	<u>Subtotal Costs</u>				\$200,241	\$200,241	\$0
<b>1.2</b>	<b>Program Support</b>	<b>1.525</b>					
1.2.1		0.2	Reclamation, MP-400; Co-manages AFSP including oversight of program budget, contracts and environmental compliance.	9/30/08	\$40,777	\$40,777	\$0
1.2.2		1	Reclamation, MP-400; Provides overall program coordination including day-to-day implementation of program budget and contracts.	9/30/08	\$166,228	\$166,228	\$0
1.2.3		0.25	U.S. Fish and Wildlife Service, Provides management oversight of program activities.	9/30/08	\$50,060	\$50,060	\$0
1.2.4		0.075	Regional contracting, budget and finance support, U.S. Fish and Wildlife Service.	9/30/08	\$15,000	\$15,000	\$0
	<u>Subtotal Costs</u>				\$272,065	\$272,065	\$0
<b>1.3</b>	<b>Technical Support</b>	<b>2.65</b>					
1.3.1		1	National Marine Fisheries Service (NMFS); Provides engineering and environmental support for review and oversight of fish screen projects. Includes representing NMFS on the AFSP Technical Team, performing necessary field and technical work involving pre-construction site evaluation, construction oversight for contract compliance and quality control, performance tests, and post-construction evaluation of screened diversions.	9/30/08	\$199,920	\$199,920	\$0

**Table 1. FY2009 Tasks, Costs, Schedule and Deliverables**

Task or Subtask Number	Name of Activity	FTE's	Description of Activity	Completion Date	Total Cost	Anticipated Funding Source RF	Anticipated Funding Source WRR
		0.25	Reclamation, MP-200, Provides engineering support and review for design and construction of fish screen projects.	9/30/08	\$40,000	\$40,000	\$0
1.3.2		0.5	Reclamation, MP-400; Provides environmental compliance support for fish screen projects.	9/30/08	\$79,098	\$79,098	\$0
1.3.3		0.25	Reclamation, MP-400; Provides environmental compliance support for fish screen projects.	9/30/08	\$46,740	\$46,740	\$0
1.3.4		0.1	Reclamation, MP-400; Provides environmental compliance support for fish screen projects.	9/30/08	\$17,260	\$17,260	\$0
1.3.5		0.125	MP-150, Reclamation Provides environmental compliance and modeling support for fish screen projects.	9/30/08	\$15,000	\$15,000	\$0
1.3.6		0.125	MP-3800, Reclamation, Provides contracting support for fish screen projects.	9/30/08	\$16,000	\$16,000	\$0
1.3.7		0.3	U.S. Fish and Wildlife Service, Provides program management and environmental compliance support.	9/30/08	\$60,072	\$60,072	\$0
	<u>Subtotal Costs</u>				\$474,090	\$474,090	\$0
<b>1.4</b>	<b>Restoration Actions</b>						

**Table 1. FY2009 Tasks, Costs, Schedule and Deliverables**

Task or Subtask Number	Name of Activity	FTE's	Description of Activity	Completion Date	Total Cost	Anticipated Funding Source RF	Anticipated Funding Source WRR
1.4.1			<b>Family Water Alliance (FWA) Fish Screening Program;</b> Provides additional cost-share funding to the FWA as part of a 3-year program to construct cost effective fish screens on unscreened diversions on the Sacramento River and Sacramento-San Joaquin Delta. This task includes collection of fish loss data, prior to installation of fish screens, to assess the biological benefits of fish screening and to help prioritize future fish screening efforts. Work performed by FWA and subcontractors with funding agreement managed by USBR regional. [Supports Action A6 and Evaluations E9 (Mainstem Sacramento River), E11 (Central Valley Wide), and E12 (Sacramento-San Joaquin Delta) of the AFRP Plan.]	12/31/2012	\$250,000	\$250,000	\$0
1.4.2			<b>Family Water Alliance (FWA) Fish Screening Program;</b> Same as Task 1.4.1. <b>Unfunded Need.</b>	12/31/2012	\$250,000	\$250,000	\$0
1.4.3			<b>Yuba City Fish Screen;</b> Provides cost-share funding for a fish screen on a replacement diversion that Yuba City has on the Feather River just upstream of the confluence with the Yuba River. Work performed by Yuba City and subcontractors with funding agreement managed by USBR regional. [Supports Action A6 (Mainstem Sacramento River) of the AFRP Plan.] <b>Unfunded Need.</b>	12/31/2010	\$500,000	\$500,000	\$0
1.4.4			<b>RD 2035;</b> Additional cost share funding to complete design and environmental work for a project to screen a 4000 cfs diversion on the Sacramento River. <b>Unfunded Need (est).</b>	12/31/2010	\$300,000	\$300,000	\$0
1.45			<b>Millville/Cow Creek;</b> Additional cost share for screen related portion of a fish passage project on a tributary to Cow Creek. <b>Unfunded Need (est).</b>	12/31/2009	\$150,000	\$150,000	\$0
	<u>Subtotal Costs</u>		Funded Needs		250,000	250,000	\$0
	<u>Subtotal Costs</u>		Unfunded Needs		1,200,000	1,200,000	\$0

**Table 1. FY2009 Tasks, Costs, Schedule and Deliverables**

Task or Subtask Number	Name of Activity	FTE's	Description of Activity	Completion Date	Total Cost	Anticipated Funding Source RF	Anticipated Funding Source WRR
1.5	<b>Evaluations Studies Investigations Research</b>						
			Laboratory Studies Assessing Hydraulics, and Fish Behavior And Swimming Performance at Diversions; Conduct laboratory-based hydraulics and fish behavioral response studies to: 1) characterize and quantify the three-dimensional flow field associated with an unscreened water diversion for a range of diversion sizes and configurations, and under a range of channel flow conditions, 2) evaluate and quantify fish behavioral responses and entrainment loss rates for target fish species under a range of diversion sizes, configurations and flow conditions, and 3) use this information to develop and test a number of fish deterring devises. This research is directed at developing alternative ways of reducing fish entrainment through use of behavioral type fish deterring devises which would be a substantially cheaper than use of positive barrier screens. This approach is likely to have the greatest application to smaller diversions (under 100 cfs) which constitute the vast majority of the remaining unscreened diversions. Studies and evaluations will be conducted by University California at Davis Hydraulics Laboratory with agency participation from Reclamation, Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Game and California Department of Water Resources. This research effort will begin in October 2009 and will extend through September 2011. Deliverables will include quarterly progress reports, annual reports, and a final report that documents all research findings and recommendations. [Supports Action A6 (Mainstem Sacramento River) and Evaluation E11 (Central Valley Wide) of the AFRP Plan.]				
1.5.1				12/31/2011	\$1,000,000	\$1,000,000	\$0



**Table 1. FY2009 Tasks, Costs, Schedule and Deliverables**

Task or Subtask Number	Name of Activity	FTE's	Description of Activity	Completion Date	Total Cost	Anticipated Funding Source RF	Anticipated Funding Source WRR
1.52			Laboratory Studies Assessing Hydraulics, and Fish Behavior And Swimming Performance at Diversions; Same as Task 1.5, Unfunded Need (est).	12/31/2011	\$250,000	\$250,000	\$0
1.5.3			<b>Non-Physical Fish Barrier Evaluation;</b> Development and testing of non-physical fish barriers including laboratory testing of the efficacy of using a bubble curtain, sound and/or light to limit fish entrainment for purposes of providing a less expensive alternative to a positive barrier fish screen for certain sized water diversions. Work to be performed by Reclamation's Technical Service Center in Denver. May include development of fish deterring devices to be tested under task 1.5.1. [Supports Action A6 (Mainstem Sacramento River) and Evaluation E11 (Central Valley Wide) of the AFRP Plan.]	12/31/2009	\$120,000	\$120,000	\$0
	<u>Subtotal Costs</u>		Funded Needs		\$1,120,000	\$1,120,000	\$0
	Subtotal Costs		Unfunded Needs		\$250,000	\$250,000	\$0
<b>1.12</b>	<b>Monitoring</b>						
1.12.1			Pre-construction monitoring of unscreened diversions is included as part of Restoration Action 1.4.1.		\$0	\$0	\$0
1.12.2			<b>Fish Sampling:</b> Fish sampling would be conducted on the Natomas Cross Canal to help assess the potential fishery benefits of screening or relocating existing diversions on the Natomas Cross Canal. The fish sampling would occur from April through September 2009 and 2010 with summary reports available in December 2009 and December 2010. [Supports Evaluation E11 (Central Valley Wide) of the AFRP Plan.] Note: Cost shown is expected to be sufficient for first year sampling. Total costs of this task will be dependent on the actual costs of the awarded contract.	12/31/2010	\$183,604	\$183,604	\$0

**Table 1. FY2009 Tasks, Costs, Schedule and Deliverables**

Task or Subtask Number	Name of Activity	FTE's	Description of Activity	Completion Date	Total Cost	Anticipated Funding Source RF	Anticipated Funding Source WRR
	<u>Subtotal Costs</u>				\$183,604	\$183,604	\$0
	<b>Total Costs</b>				<b>\$2,500,000</b>	<b>\$2,500,000</b>	<b>\$0</b>
	Service total cost				\$325,373	\$325,373	\$0
	Reclamation total cost				\$2,174,627	\$2,174,627	\$0
	Unfunded Needs				\$1,450,000	\$1,450,000	\$0
	Potential 15% reduction		tasks 1.4 and 1.5		\$375,000	\$375,000	\$0

Budget reductions, if necessary, would tentatively apply first to Tasks 1.4 and 1.5.

**Table 2. BUDGET BREAKOUT**

Task	Agency	FTE	LABOR		CONTRACTS				Total Costs
			Direct Salary and Benefits Costs	Overhead Costs on Salary & Benefits	USFWS Overhead Assess: 22% of Direct Salary and Benefits Costs	Contract, Grant, and Agreement Costs	USFWS Overhead Assess: 6% Contract Costs	Misc. Costs	
1.1 Program Management	USFWS	1	164,132	0	36,109	0	0	0	200,241
	USBR		0	0	0	0	0	0	0
1.2 Program Support	USFWS	0.325	53,328	0	11,732	0	0	0	65,060
	USBR	1.2	89,411	117,594	0	0	0	0	207,005
1.3 Technical Support	USFWS	0.3	49,239	0	10,833	0	0	0	60,072
	USBR	1.35	130,815	83,283		0	0	0	214,098
	NMFS (USBR Contract)	1	0	0	0	199,920	0	0	199,920
1.4 Restoration Actions	USFWS		0	0	0	0	0	0	0
	USBR					250,000	0	0	250,000
1.5 Evaluations, Studies, Investigations, Research	USFWS		0	0	0	0	0	0	0
	USBR		0	0	0	1,120,000	0	0	1,120,000
1.12 Monitoring	USFWS		0	0	0	0	0	0	0
	USBR		0	0	0	183,604	0	0	183,604
<b>USFWS Total Costs</b>		1.625	266,699	0	58,674	0	0	0	325,373
<b>USBR Total Costs</b>		3.55	220,226	200,877	0	1,753,524	0	0	2,174,627
<b>TOTAL ALL</b>		5.175	486,925	200,877	58,647	1,753,524	0	0	2,500,000

**Table 3. Three Year Budget Plan FY 2010 – 2012**

(\$in thousands)

Year	Description of Activities	Requested RF Funding	Requested W&RR Funding
2010	Approximately \$978 thousand for Program Management (Tasks 1.1, 1.2 and 1.3) and remainder for Restoration Actions (Task 1.4). See narrative for a description of anticipated restoration actions.	5,240	760
2011	Approximately \$1.03 million for Program Management (Tasks 1.1, 1.2 and 1.3) and remainder for Restoration Actions (Task 1.4). See narrative for a description of anticipated restoration actions.	5,240	760
2012	Approximately \$1.08 million for Program Management (Tasks 1.1, 1.2 and 1.3) and remainder for Restoration Actions (Task 1.4). See narrative for a description of anticipated restoration actions.	5,240	760

Note: The FY 2010 – 2012 Budget Plan provides estimates of capability only. The W&RR Appropriations are displayed as amounts that might be reasonably appropriated each year. These figures do not reflect the future Congressional Appropriations process. All of these estimates will be adjusted annually as RF collections are realized.

**Restoration Actions - Task 1.4** - Program capabilities as stated in the 3-Year Budget Plan table are those funds that could be expended on an annual basis for construction of fish screen projects including screens for diversions operated by Natomas Mutual Water Company, Meridian Farms Water Company, Reclamation District 2035, Patterson Irrigation District, and Pleasant-Grove Verona Water Company, or other fish screen projects. The identified fish screen projects are currently in the planning phase and are anticipated to be ready for construction during the 2010 to 2012 period. These fish screen projects protect out-migrating spring, fall, and winter-run Chinook salmon and Central Valley steelhead as well as resident game and non-game fish from entrainment. Determination of which fish screen project(s) to fund annually would be made based on the most currently available information. Factors to be considered include: availability of non-federal cost share funding, degree of biological benefits, and project costs relative to biological benefits.