Central Valley Project Improvement Act

Section 3406 (b)21

Anadromous Fish Screen Program

Anadromous Fish Screen Program Team

- *Bill O'Leary* USFWS Program Manager
- *Dan Meier* USBR Project Manager
- *Bill Dutton* USBR Project Engineer
- *Debbie Coleman* USBR Program Coordinator
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Anadromous Fish Screen Program Interagency Technical Team

- *Bill O'Leary* US Fish and Wildlife Service
- Dan Meier Bureau of Reclamation
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- *Steve Thomas* National Marine Fisheries Service
- *Rick Morat* US Fish and Wildlife Service
- *Roger Padilla* Department of Water Resources
- *Katie Witts* Department of Fish and Game

Anadromous Fish Screen Program

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- **Directs the Secretary to Assist the State of California in efforts to implement measures to avoid losses of juvenile anadromous fish;**
- **Measures include construction, rehabilitation, and replacement of fish screens and relocation of diversions to less fishery sensitive areas;**
- **Federal cost share shall not exceed 50% of the total cost of any such activity. Program active since 1994.**

Benefits of Screening of Diversions

- **Screens compliment other habitat restoration;**
- **Screens contribute to increased fish production efforts from upstream restoration projects;**
- **Steelhead occur year round in streams during the entire diversion season; fall-run and winter-run Chinook salmon out-migration also occurs primarily during the diversion season; screens reduce entrainment losses of these species;**

Benefits of Screening of Diversions Cont.

- **Benefits other native aquatic organisms of importance to the ecosystem by effectively keeping them out of the diversions;**
- **Screening diversions help meet goals and objectives of CVPIA Section 3406(b)(21) requirements;**
- **Screen installation satisfies legal responsibility under ESA to avoid or limit take of listed fish.**

Anadromous Fish Screen Program Update

- **2,200 agricultural diversions in the Delta;**
- **740 diversions in the Sacramento River system;**
- **150 diversions in the San Joaquin River system;**
- **370 diversions in the Suisun Marsh basin;**

Anadromous Fish Screen Program Update

- **Since 1994, 21 screening projects completed;**
- **1 large project was completed in 2004 (City of Sacramento, Sac River Facility);**
- **3 large fish screen projects are likely to be constructed by 2007 (Natomas Mutual Water Company, Sutter Mutual Water Company, RD108, for an approx total of 2000 cfs);**

Anadromous Fish Screen Program Update cont.

- **AFSP project priorities are coordinated between the AFSP and the Calfed ERP Program;**

- **AFSP funding is coordinated with CBDA to match federal funds with State funds to the extent possible;**

Anadromous Fish Screen Program Update cont.

- **The AFSP has developed new draft interim fish screen prioritization guidelines based on current fisheries knowledge and best professional judgement:**
  - **High Priority Projects (to be funded) -**
    - **100 cfs or greater on the Sacramento River;**
    - **Highly Productive Tributaries where 10% of flow is diverted**
  - **Medium Priority Projects (may be funded) –**
    - **100 cfs or greater in the Delta or San Joaquin River systems;**
    - **Under 100 cfs diversions on Sacramento River and/or productive tributary diversions taking less than 10% of flow;**
  - **Low Priority Diversions (not to be funded) –**
    - **All other diversions**

Anadromous Fish Screen Program Update cont.

- **As a means of quantifying the effects of screening on fisheries, the AFSP is providing funds in FY05 to initiate the monitoring of fish losses at selected unscreened diversions;**

- **Future fish screen prioritizations are being coordinated through the interagency Fish Screen Evaluation Committee (FSEC).**

Fish Screen Evaluation Program

- **The FSEC was initiated in 2004 to refine common interagency goals and priorities for future fish screen projects**
- **The FSEC is formed of members representing NOAA Fisheries, CDFG, USFWS, DWR, Bureau of Reclamation, CBDA, and the ERP Science Board**

Fish Screen Evaluation Program cont.

- **The FSEC is currently developing monitoring plans to quantitatively assess benefits of fish screen projects.**

- **The FSEC has assisted the AFSP in developing a 3-year monitoring and assessment proposal to Calfed Science through the PSP process.**

Fish Screen Evaluation Program cont.

Continuing FSEC Efforts:

- **Monitoring Assessments**
  - **Investigate entrainment correlations:**
    - **Relative to diversion location and orientation;**
    - **Relative to percentage of flow diverted**
- **Fish Loss Criteria**
  - **Develop acceptable cumulative fish loss criteria;**
  - **Establish cumulative % mortality not to be exceeded**
- **Quantitative Assessments**
  - **Couple quantitative assessments of fish losses with mortality thresholds;**
  - **Develop models to assess and predict effects of diversions.**

Cumulative Fish Screen Loss Mortality

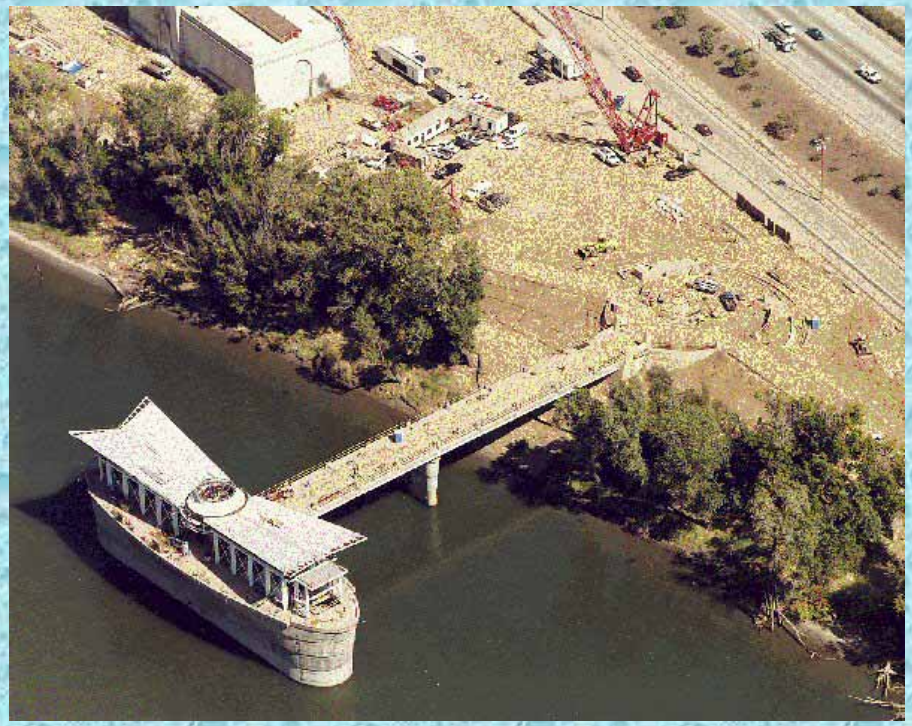
- **General Criteria for Screening Diversions using acceptable fish loss concept:**
  - **Cumulative mortality cannot exceed X% of the Population throughout the entire system.**
  - **Where:**
  - **X% is defined as the proportion of the population that can be taken without hindering recovery and,**
  - **The Population could be defined as each race of salmonids (at least) in each watershed**
- **How Do We Define X%?**
  - **Fund Modelling research**
  - **Use EWA efforts**
  - **Extract from current literature**
- **How do we quantify entrainment/mortality at diversions?**
  - **Logical deduction**
  - **Managers policy decision**
  - **Use existing population models**
  - **Measure entrainment losses in the field**

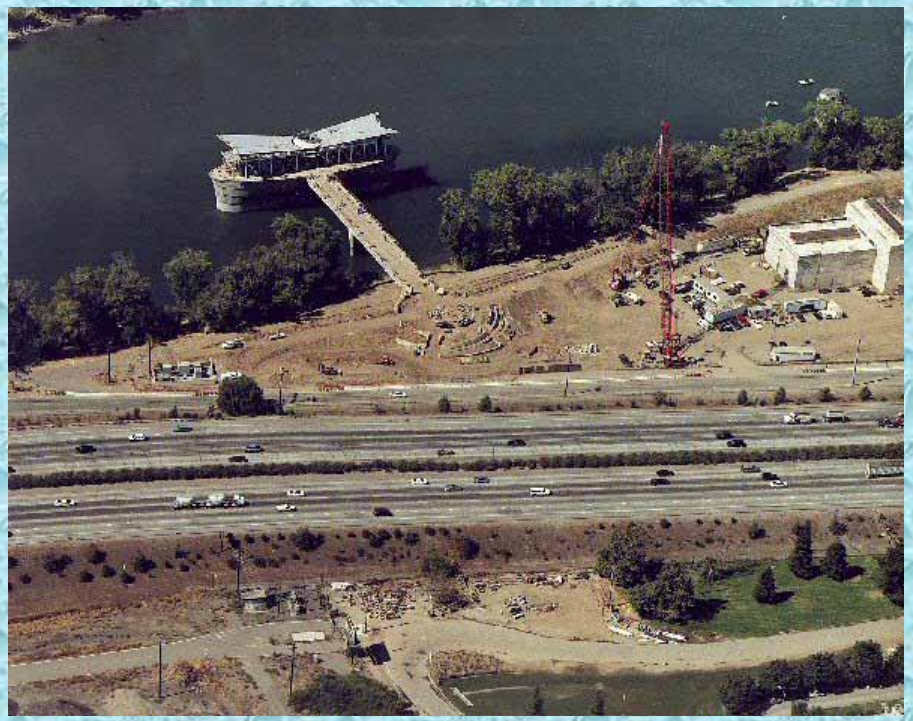
Anadromous Fish Screen Program Accomplishments FY 04

- **City of Sacramento –245 cfs on Sacramento River, Construction completed in Dec 04.**
- **UC Davis – Completed fish "Treadmill" performance tests and research studies funded by the AFSP.**

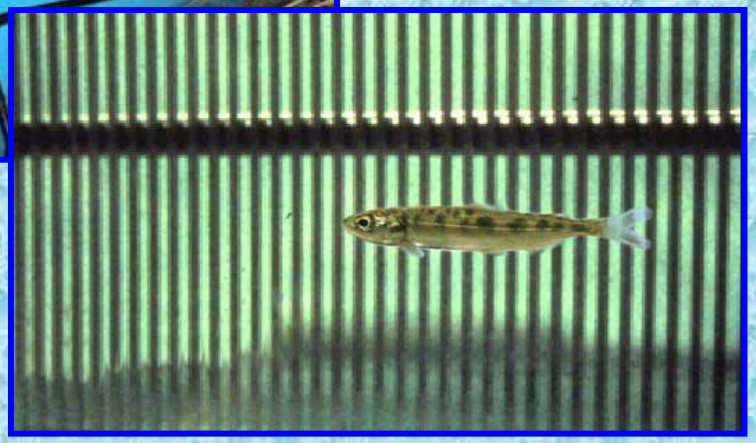
Sacramento River Water Treatment Plant

Pump and Fish Screen Facility





UCD Fish Treadmill Studies



AFSP 2005 Funding Priorities

Sutter Mutual W C	$4,887,500
Natomas Mutual W C	$2,955,000
RD108	$2,955,000
RD999	$318,000
Project Totals	**$11,115,500**

Fish Screening Summary

- **Total diversions screened with AFSP cost shared funding equals about 3,200 cfs in the Delta, Sacramento River system, and San Joaquin River system combined;**
- **An additional 245 cfs was screened in FY 04;**
- **Over 70 percent of all diversions 250 cfs or greater are now screened within the Sacramento River system.**

Fish Screening Summary

- **Total costs for completed AFSP Projects to date is approximately $102 million, with over $29 million cost-shared through the AFSP;**
- **Total costs for ongoing AFSP projects is approximately $109 million, with about $51 million to be cost–shared through the AFSP;**
- **Of the $51 million of federal funds to be cost shared, approximately $26.5 million is currently obligated or committed (this includes FY05 funding).**

Conclusions

- **We have obligations to avoid losses, protect listed and targeted anadromous fish and reduce take;**
- **We will continue to provide cost share funding for larger diversions and smaller diversions on important spawning tributaries as identified in the CVPIA PEIS, the AFRP Final Restoration Plan, and by the AFSP Interim Prioritization Guidelines, until such time as new prioritization guidelines are established;**

Conclusions

- **The AFSP is currently working with the FSEC in developing unified interagency goals and actions for future fish screening projects, and will reprioritize future fish screen projects based on these goals;**
- **The AFSP is coordinating with the FSEC in initiating plans to monitor and quantitatively assess the benefits of screening diversions on fish populations and fisheries restoration;**

Conclusions

- **Decisions regarding funding of screen projects and assessments of benefits of screen projects on fish populations must be collaborative with input from the following entities:**
  - **AFRP**
  - **AFSP/FSEC**
  - **Calfed ERP**
  - **NOAA**
  - **DFG**
  - **DWR**