

South Delta Fish Facility Issues



**Proposed SWP Fish
Screen Intake**

Skinner FF

Banks PP

Existing CCF Intake

**Proposed Tracy
Fish Test Facility**

Tracy PP

Tracy FF



Tracy Fish Facility

An aerial photograph of the Clifton Court Forebay Fish Facility. The image shows a large, dark blue body of water in the upper right, which is the forebay. A long, narrow concrete dam or weir extends from the bottom center towards the left, crossing the water. To the left of the dam, there are several winding, man-made channels or canals that meander through green, grassy fields. In the bottom left corner, there is a cluster of buildings, including a large white structure and several smaller ones, which are part of the facility's infrastructure. The overall landscape is a mix of natural greenery and engineered water control structures.

Clifton Court Forebay Fish Facility

Issue - Existing Louvers:

- A Behavioral Fish Screen
- Efficiencies vary from 0 to 95%
- Designed for fish larger than 1-inch
- Debris buildup impacts operations and efficiency
- Criteria Requires Positive Barrier Screen, but Agency Exemption Process Exists

Proposed Screen Opening will be 14 Times Smaller than Louvers!

Many Fish
Smaller than
Louver Opening



1.75 mm



26 mm

64 New Positive Barrier Screens Funded by CALFED (up to 3000 cfs)



Many Lessons Learned to Date!



Issue - Existing Debris Problems:

- Debris Collection Point of the Delta
- Debris Impairs Facility Operations
 - Water Supply Reliability
 - Fish Salvage Operations
- System Concentrates the Debris and Fish into Holding Tanks and Trucks

With Water Comes Fish and Debris...

At peak times, Hyacinth mats have been up to 6 Miles Long!



Debris Removal Challenge is Labor Intensive

Up to 430 truckloads of debris have been removed daily at historic peak



Peat Mats,
Duckweed,
Egaria,
Etc.

**Debris loads can
exceed capabilities of
existing facilities**



Headloss at Trashrack Hampers Fish Salvage and Operations

**Up to 25 Sturgeon
per day recovered on
trashracks**



**Maximum headloss
on trashracks has
exceeded 8 feet!**

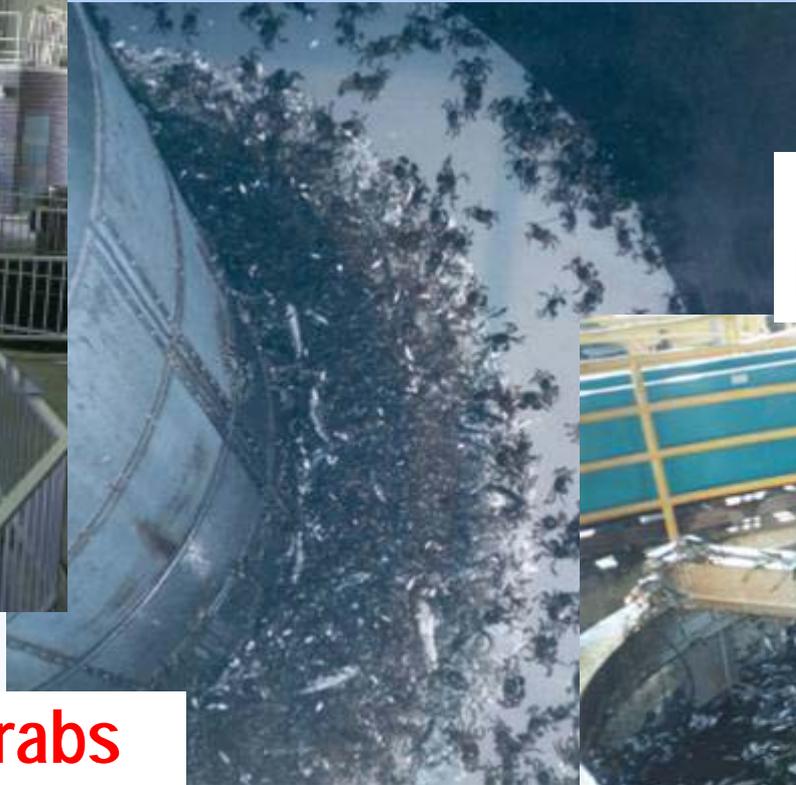
Continuous Debris Removal Needed - Now Everything Goes to Truck with Fish!

Debris load from existing bypass



Over 50 percent of fish transport load can be debris

Deep Tank Gravity Fish Bypass Collection Concentrates All Fish and Debris in Bucket...



**Dead fish...
before transport**



**25,000 Mitten crabs
per day have been
collected with fish**

Tracy Facility has Access, Predator, Removal, and Dewatering Problems

At critical times, bi-weekly predator removals are conducted at Tracy



Fish Holding Tanks have no Predator Separator System

Up to 20 small fish have been found in predators



Largest fish found in bypass...60 Lbs.

52 Species are Transported to Small Outfall Pipe in Western Delta



CHTR Studies are High CALFED Priority

Issue -- Aging Facilities:

Fish "leak"
out of
through
structu



On-Going Testing Programs Related to New Facilities

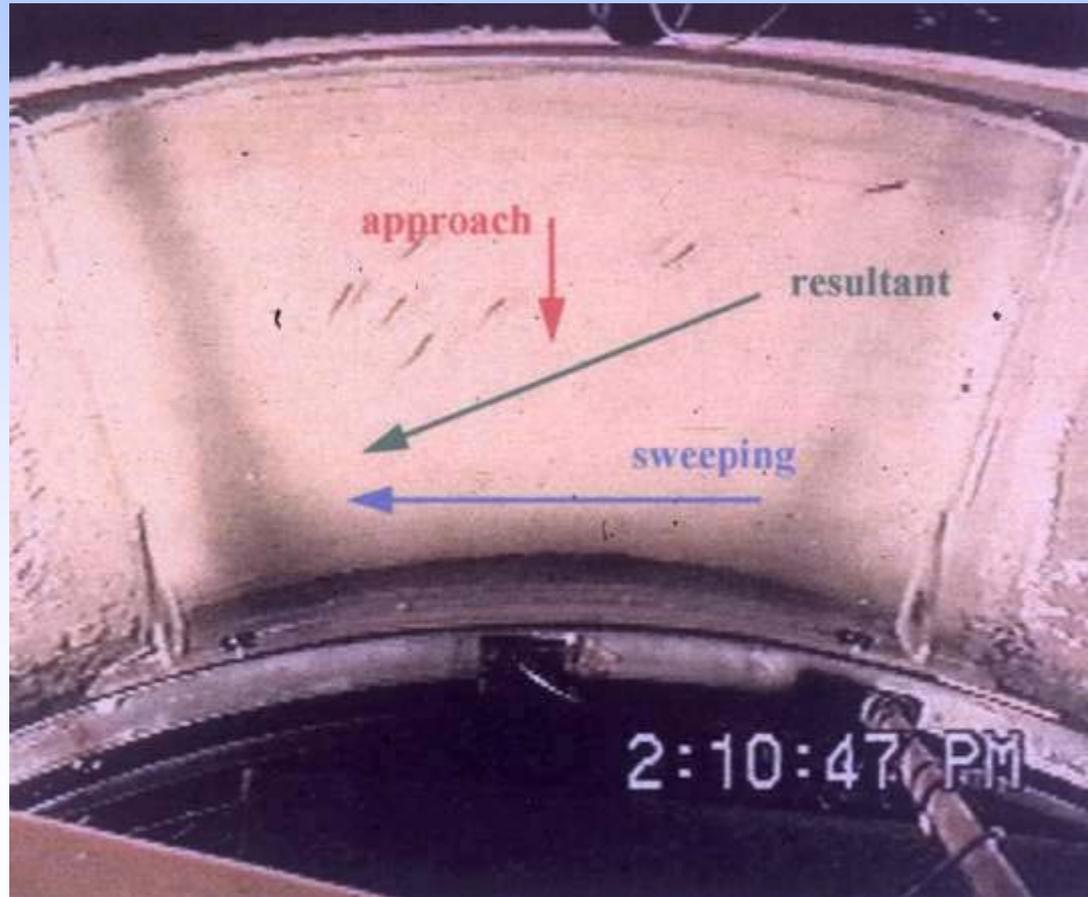
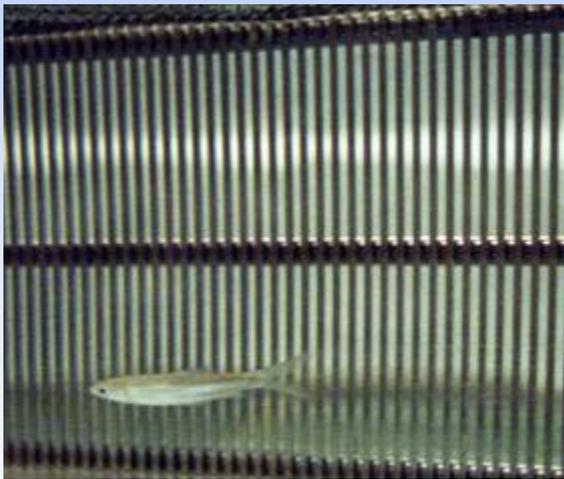
Collection, Handling, Transport, and Release Studies (CHTR)



CHTR studies critical to understanding fish survival



Fish Treadmill to Determine Operating Hydraulics for Multi-Species Protection



Tracy Fish Lift Testing for Fish Holding and Transportation Improvements

**On-going
Hidrostal fish
pump testing at
Tracy showing
excellent results!**



Lab Testing to Determine New Fish Holding Systems with Separators and Continuous Debris Removal Systems

**Hydraulic/Biological
Lab Testing on New
Holding Facilities at
USBR Denver Lab**

