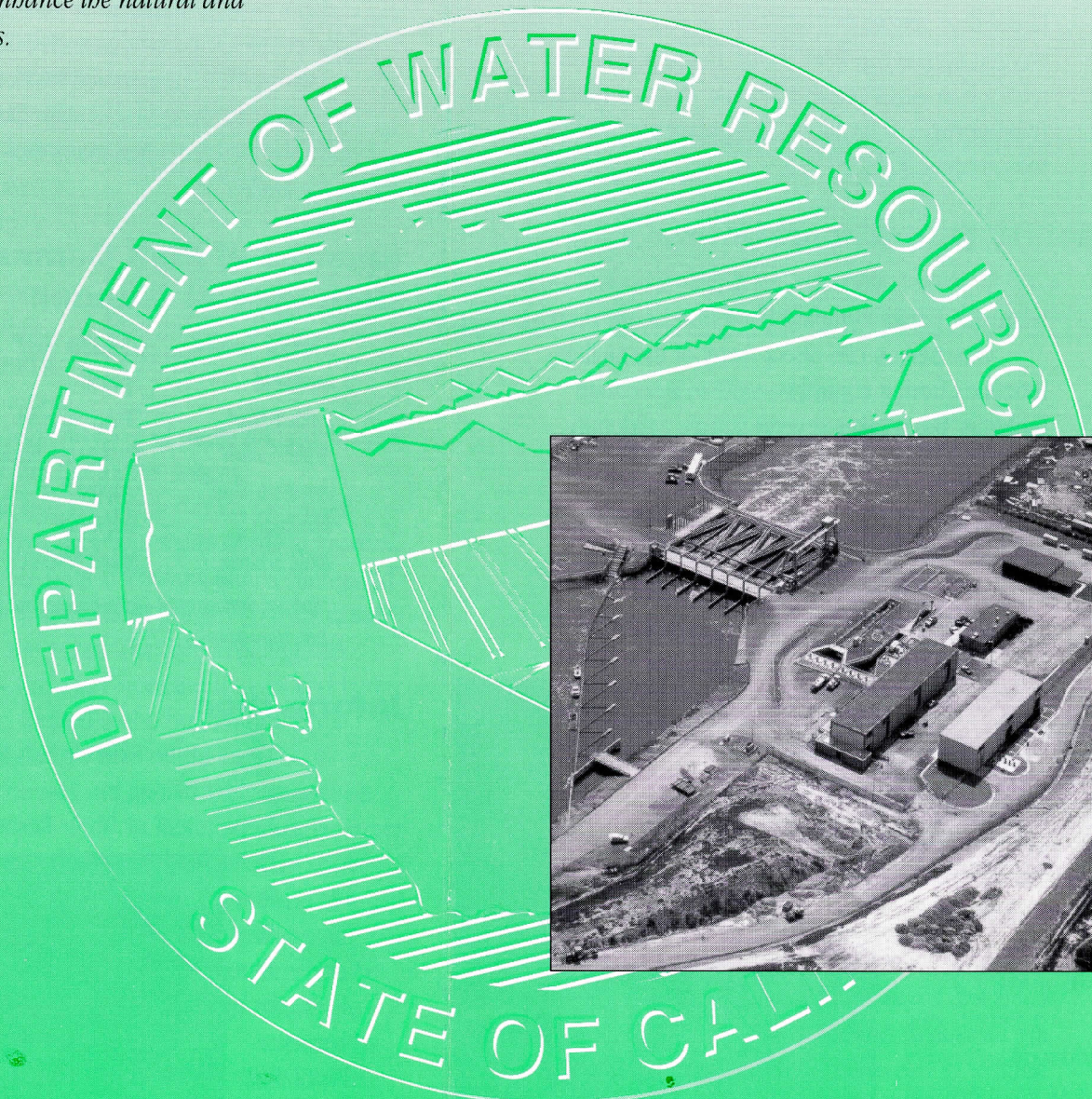


## California Department of Water Resources' Mission...

*To manage the water of California, in cooperation  
with other agencies, to benefit the state's people and  
protect, restore and enhance the natural and  
human environments.*

## Skinner Fish Facility



**PETE WILSON**  
Governor  
State of California

**DOUGLAS P. WHEELER**  
Secretary for Resources  
The Resources Agency

**DAVID N. KENNEDY**  
Director  
Department of Water Resources





## The State Water Project

Planned, designed, constructed and operated by the California Department of Water Resources, the State Water Project is the largest state-built, multipurpose water project in the United States. The Project includes 29 storage facilities, 18 pumping plants, four pumping-generating plants, five hydroelectric power plants, and approximately 660 miles of canals and pipelines. Its main purpose is water supply — that is, to divert and store surplus water during wet periods and distribute it to areas of need in Northern California, the San Francisco Bay area, the San Joaquin Valley, the Central Coast, and Southern California. Other project purposes include flood control, power generation, recreation, fish and wildlife enhancement, and water quality improvement in the Sacramento-San Joaquin Delta.

Twenty-nine water contractors, the urban and agricultural water agencies that buy water from the State Water Project, have long-term contracts for an ultimate total of just over four million acre-feet a year. Of this amount, approximately 70 percent of this SWP water will go to urban users and 30 percent to agricultural users.

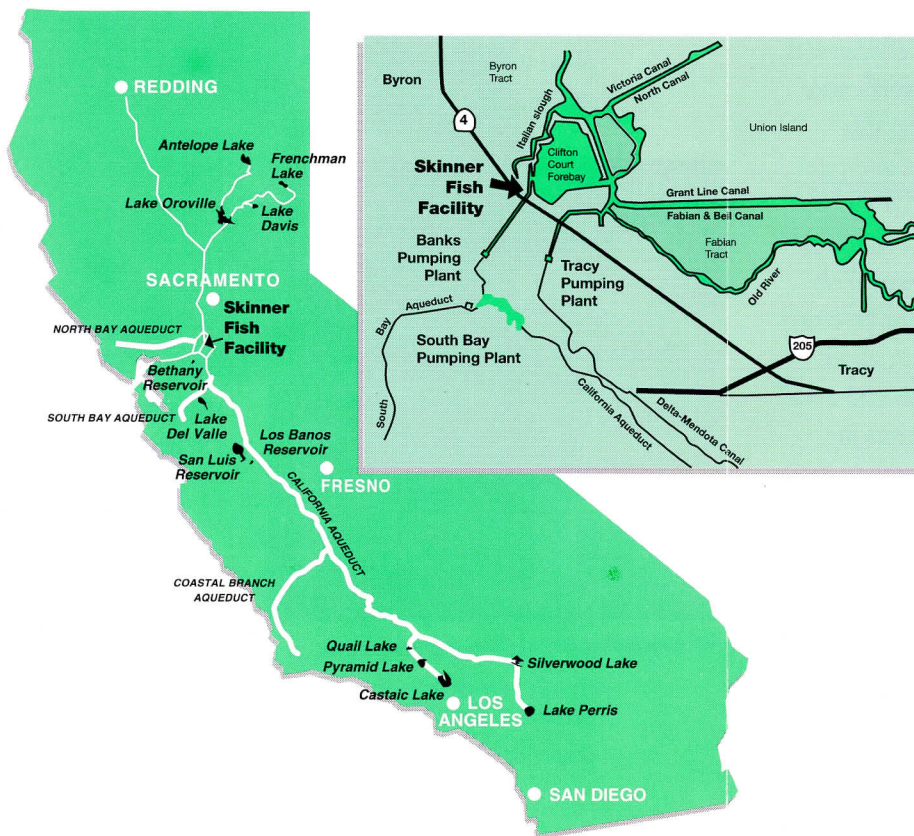
### Skinner Fish Facility

Skinner Fish Facility, located two miles upstream of the Banks Pumping Plant, contains a giant fish screen to keep most fish away from the pumps that lift water into the California Aqueduct. The facility is a short distance away from a similar fish protective facility at the federal Tracy Pumping Plant.

At the Skinner Fish Facility, an average of 15 million fish a year are diverted away from the pumps and returned to the Delta. Operated since 1968 by the California Department of Water Resources, the facility plays an important role in protecting Bay-Delta fish. The system is effective but not flawless. Some fish fall prey to predator fish in the Clifton Court Forebay before the screens and near the screens themselves. Small fish can also slip through the screens and make their way into the aqueduct and reservoirs downstream of the Delta, where some such as striped bass and catfish become the basis for recreational fisheries.

### Facility Name

The facility was named for John E. Skinner, a State Department of Fish and Game biologist who was a national authority on fish protective facilities and striped bass research.





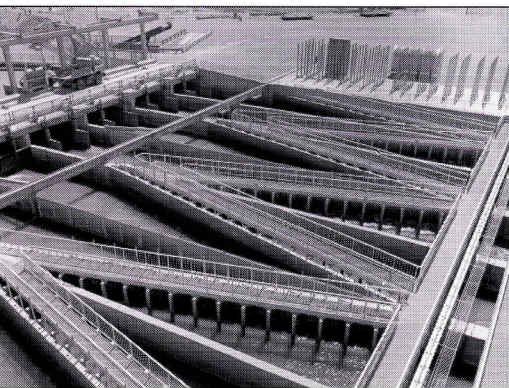
## Skinner Fish Facility Guide

The facility guides fish through four basic steps:

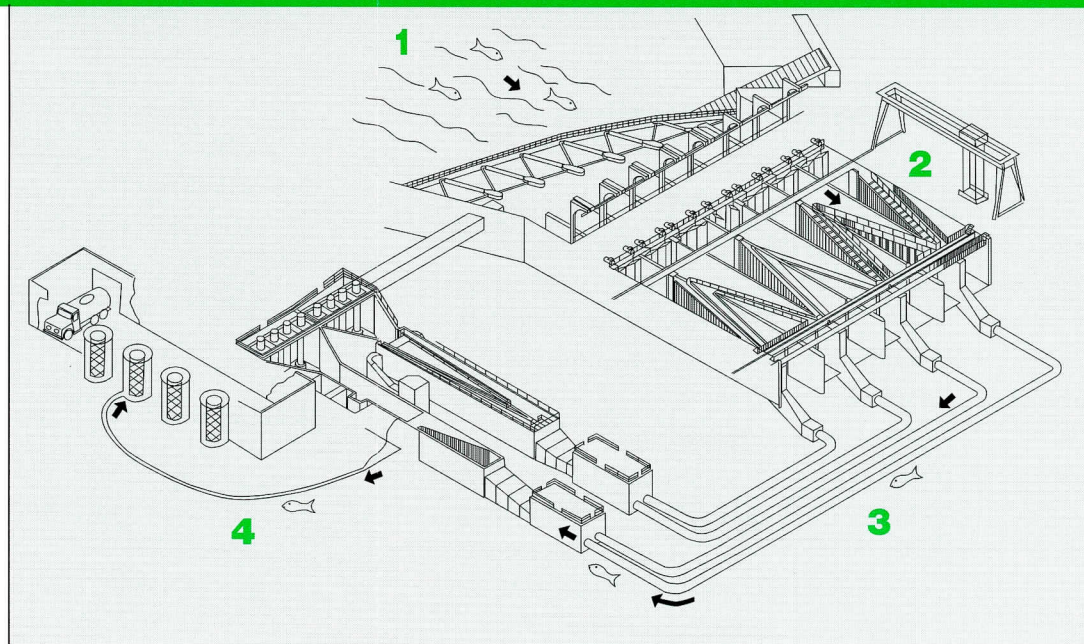
**1.** Fish move with the current into the intake channel from Clifton Court Forebay, located in the southern portion of the Sacramento-San Joaquin Delta. A floating trash boom and a two-inch trash rack diverts large fish and most of the floating debris before they enter the louver system.

**2.** Small fish are diverted from the intake channel into bypasses by a series of metal louvers, which resemble vertical window blinds configured into a large v shape. These primary louvers cause a rippling in the water. The fish, avoiding this turbulence, swim away from the louvers and into bypass pipes, located at the bottom of the v's. Meanwhile, the main flow of the water continues through the louvers and toward the pumps. Fish

must be larger than about one-and-a-half inches in length to be effectively screened by the louvers.



*The louver system*

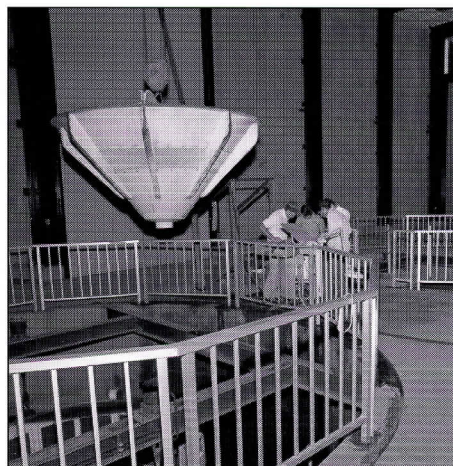


*Facility map*

**3.** The bypass pipes discharge into secondary channels with secondary screens. The original secondary screen is a louver design. A new parallel secondary screen constructed in the mid-1980s is a plate with very small holes which excludes all but the smallest fish. The fish are diverted through a

second set of bypass pipes into holding tanks. The main purpose of the secondary screens is to concentrate the salvaged fish into a manageable amount of water.

**4.** Seven 20-foot diameter concrete tanks hold the fish in 10 to 12 feet of water. A



*Fish from holding tank are being counted.*

vertical cylindrical screen in each tank contains the fish while water is continuously circulated through the tanks and back



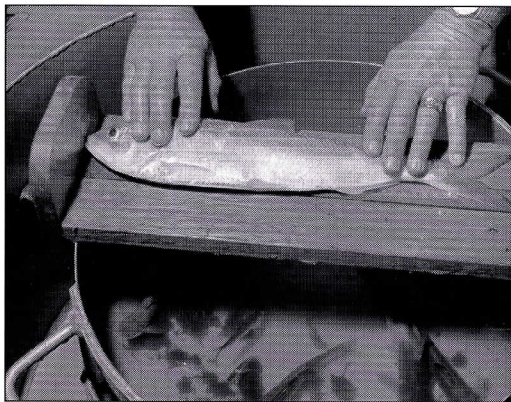
into the intake channel. Samples of fish are periodically taken from the holding tanks, identified, counted, and measured by staff from the California Department of Fish and Game.

When enough fish accumulate in the holding tanks, they are loaded into tank trucks supplied with oxygen for the trip back to the Delta, where they are released in either the Sacramento River or the San Joaquin River at locations away from the influence of the pumps.

## Facility Operations Hours

Fish are collected at the facility 24 hours a day when the Banks Pumping Plant pumps are running.

One person can direct many of the facility's functions from a control console in a separate building. But it takes several people to identify, count, measure, and transport the fish.



*Sample fish are measured*

About every two hours, a sample of fish is collected. Up to 24 fish of each species in the sample are measured. An estimate is then made of the total number of fish collected during that two-hour period and these estimates are used to develop daily, monthly, and yearly estimates. Handling is kept to a minimum to reduce the risk of harming the fish.

## Pumping Restrictions Aid Fish Migration

The Delta Accord, an agreement signed by state and federal agencies and stakeholder groups in 1994, provided standards and operational restrictions to protect anadromous and resident fish in the Delta. Two of these operational restrictions reduce diversions at the federal and state Delta fish facilities during periods when many fish are moving through the Delta.

## Species of Fish Commonly Collected at Skinner

Chinook Salmon	Threadfin Shad*	Green Sunfish*
Steelhead	Splittail	Carp*
Striped Bass*	White Sturgeon	Pacific Lamprey
White Catfish*	Sacramento Blackfish	Bluegill*
American Shad*	Crappie*	Delta Smelt
Hardhead	Tule Perch	Yellowfin Goby*
Riffle Sculpin	Inland Silverside	

*\*Species that are not Delta natives but have been introduced into the estuary.*

## Information

Tours of the Skinner Fish Facility can be arranged by writing to:

Department of Water Resources  
Delta Field Division  
Route 1, Box 39  
West Kelso Road  
Byron, CA 94514  
or by calling (209) 835-7106.

*Visit DWR's Website at <http://www.dwr.water.ca.gov/>*

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