



IN REPLY
REFER TO:

United States Department of the Interior



BUREAU OF RECLAMATION

Mid-Pacific Region

Tracy Office (CVP)

Route 1 Box 35

Byron, California 94514-9614

FACT SHEET

BUREAU OF RECLAMATION TRACY FISH COLLECTING FACILITY CENTRAL VALLEY PROJECT, CALIFORNIA

The fish collecting facility is located at the head of the Tracy Pumping Plant Intake Channel about 2 1/2 miles (2.7-km) northeast of the Tracy Pumping Plant and about 9 miles (9.8-km) northwest of Tracy (San Joaquin County), California.

The purpose of this facility is to collect young salmon and striped bass which are diverted from their seaward migration by the Tracy Pumping Plant into the Delta-Mendota Canal and to return them to the river or the Delta to resume their migration; also, to collect and save nonmigratory fish.

The Tracy Fish Collecting Facility is a unique installation, experimentally developed. It's operation depends on the apparent ability of fish to sense an obstruction in their path as they drift downstream with the current. Taking advantage of this ability, an obstruction is created by installing a system of louvers across the canal. This system, placed at a sharp angle in the canal, diverts the fish into small bypass channels which lead to a small second louver system. The second louver system in turn diverts into a system of four holding tanks. The holding tanks have cylindrical screens in the center through which incoming water passes while incoming water passes while fish accumulate in the tank. When a load has accumulated, all but 500 gallons (1,892.7-l) of water and the fish are drained off. Then a bucket lowered to the bottom of the holding tanks receives the water and the trapped fish. The bucket is lifted out with a crane and the fish loaded into a specially built tank truck. The fish are then hauled to several points far enough downstream to escape the influence of the Tracy pumps. Migrating fish can then resume their journey to the sea.

PRINCIPAL FEATURES

a. Primary Louver System: This system is constructed in an 84-foot-wide (25.6-m) vertical-walled channel at an angle of 15 degrees to the direction of flow with each louver slat 90 degrees to the direction of flow. The entire system resembles a hugh venetian blind 320 feet (97.5-m) long with 25-foot (7.6-m) slats placed vertically, with a clear opening of 1 inch (25.4-mm) between slats. Fish are diverted into four bypasses in the face of the system. These bypasses, which are 6 inches (152.4-mm) wide and extend from top to bottom, divert about one-fortieth of the total flow. They are transitioned into 36-inch-diameter (914.4-mm) pipelines which lead to the secondary louver system.

b. Secondary Louver System: From the point where the bypasses from the primary louver system discharge into the secondary louver system, the channel of the secondary system narrows, within a distance of 18 feet (5.5-m) from 20 feet (6.1-m) to 8 feet (2.4-m). A double set of louvers is set between the vertical walls of the 8-foot (2.4-m) channel, also at an angle of 15 degrees and 1 inch (25.4-mm) between slats. The water containing the fish is laden with minute debris so clear water is pumped back, after screening through a traveling water screen, and introduced in the channel just above the bypass. The fish enter this cleaned water and are carried into the bypass through conduits into one of four holding tanks. The water that passes through the louvers is pumped back into the main channel below the primary system.

c. Holding Tanks: Fish received from the secondary louver system may be channeled into any one of the four circular holding tanks. These are 20 feet (6.1-m) in diameter and 16 1/2 feet (5.0-m) deep with 8-foot-diameter (2.4-m) cylindrical wire-mesh screens in the center. The bottom of the tanks are designed to receive a 500-gallon (1,892.7-l) bucket. When a load of fish accumulates in one tanks, the inflow from the secondary louvers is channeled to another and the water that drains through the cylindrical screen is pumped out except for 500-gallons (1,892.7-l) containing the fish, held back by the unscreened bottom of the cylinder. A 500-gallon (1,892.7-l) bucket is then lowered into a sump in the bottom of the tank and the center cylinder is raised a few inches to release water and fish into it. The bucket is then ready to be raised up through the cylinder to be emptied into a tank truck.

d. Tank Trucks: These have been designed after trucks developed by the California Department of Fish and Game for hauling fish. They are equipped with refrigeration recirculation and aeration units to maintain correct water temperatures and to replenish oxygen so the confined fish will not suffocate.

e. Trashrack: This structure is not a part of the fish collecting facility. However, it aids in its operation by preventing the entry of trash and also keeps out larger fish, at least those larger than the 2-inch (50.8-mm) clear opening between bars. Furthermore, since large fish are strong enough to swim against the current which leads toward the pumping plant, it is likely that they react to the trashrack in the same manner as small fish react to the louvers. Thus consensus is that the trashrack keeps out most fish strong enough to swim against the current. That this is true is indicated by the fact that although millions of small fish are taken, very few large fish find their way into the holding tanks.

FACTS AND FIGURES

Primary Louvers

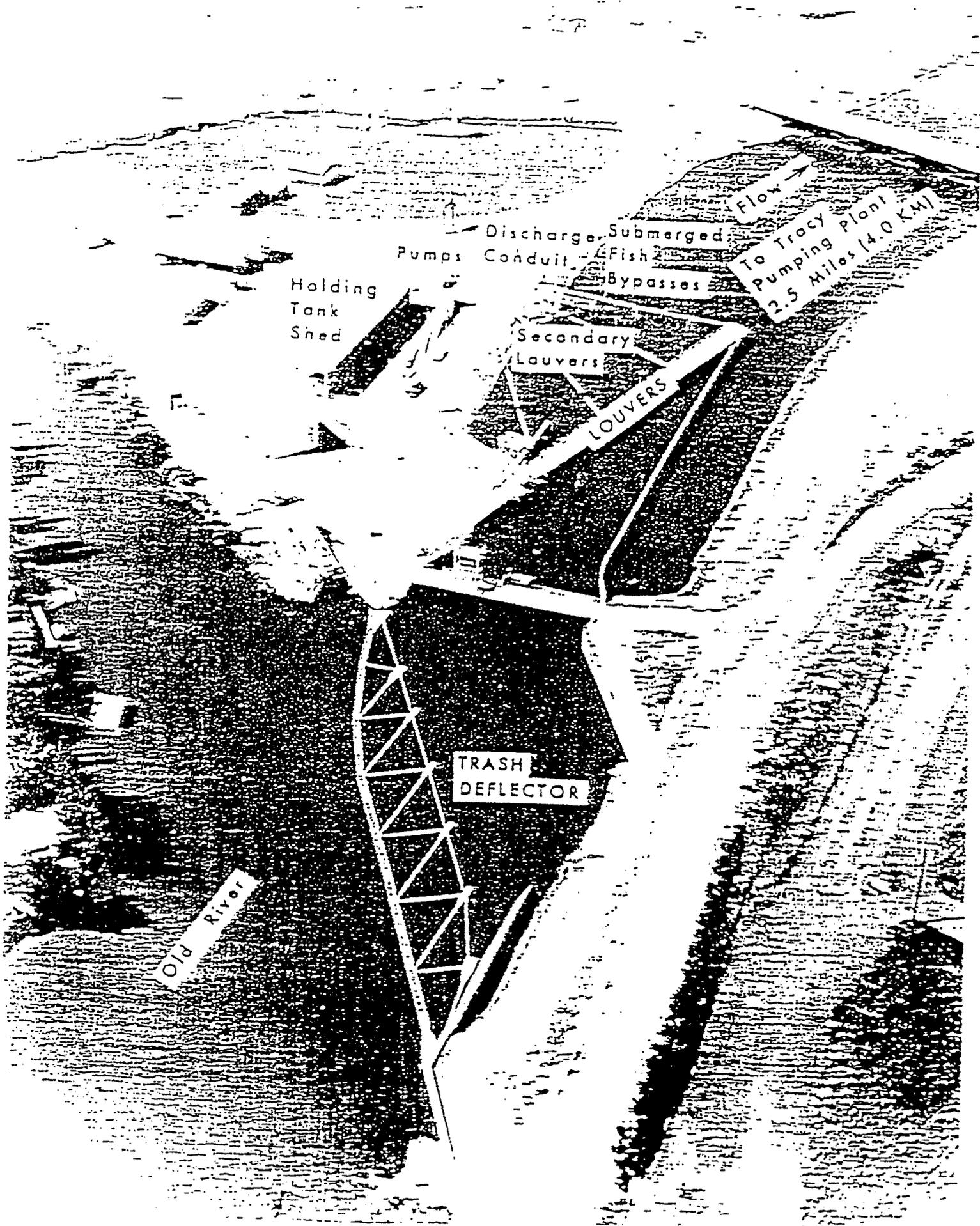
Channel width 84 feet (25.6 meters)
Channel capacity 4,600 cubic feet (130.0 cubic meters)
plus up to 400 cubic feet (11.3 cubic
meters) per second additional at
incoming tide.
Maximum velocity of flow 5.3 feet (1.6 meters) per second
Length of primary louver system .. 320 feet (97.5 meters)
Height of primary louver system .. 25 feet (7.6 meters)
Number of bypasses 4, placed 75 feet (22.9 meters) apart
Width of bypass openings 6 inches (152 millimeters)
Spacing of louver slats 1 inch (25.4 millimeters)
Elevation of bottom of channel ... 14 feet (4.3 meters) below sea level

Secondary Louvers

Length 120 feet (36.6 meters)
Width Approximately 8 feet (2.4 meters)
Height 14 feet, 6 inches (4.4 meters)
Louvers, 2 systems Each 31 feet (9.4 meters) long
One fish bypass
Louver slats Spaced 1 inch (25.4 millimeters)
apart

Holding Tanks

Number 4
Diameter 20 feet (6.1 meters), depth 16 1/2
feet (5.0 meters)



Holding Tank Shed

Discharge Submerged Pumps Conduit

Secondary Louvers

LOUVERS

Flow
To Tracy Plant
2.5 Miles (4.0 km)

TRASH DEFLECTOR

Rio River