



Photo credit: Fishery Foundation of California.

North Granlees Dam Fish Passage Improvement Project

Background

The Cosumnes River, the last un-dammed river running from the eastern slopes of the Sierra Nevada Mountains into the Sacramento/San Joaquin Delta, supports a rich aquatic ecosystem. The Cosumnes River has escaped major water development and has retained a relatively natural flow pattern and accompanying sediment and nutrient transport process. The annual flow regime in the Cosumnes River is a significant limiting factor for salmon. The Cosumnes River watershed receives most of its runoff in the form of rainfall, primarily from November through April. With little snowmelt to augment fall flows, the river between Highway 16 and Twin Cities Road often dries or has flows unsuitable for upstream migration. Although the Cosumnes River historically supported thousands of fall-run Chinook salmon, the run was reduced to a few hundred spawning individuals because of habitat degradation, the loss of fall attraction flows, and barriers to migration.

Rancho Murrieta Community Service District ("RMCS D") operated a small diversion dam, called the Granlees Dam. The dam consisted of two separate structures, one in each channel and each with its own fish ladder. The dam contributed to 1) excessive fish jump heights in all pools; 2) inadequate dimensions in resting pools; 3) substandard entrance pool for wide range of flows; 4) high risk of salmon spilling back into the basin upon exiting the ladders due to poorly placed spillway; 5) inadequate wall height increasing the risk of larger fish jumping out of resting pools; and, 6) misleading attraction flows on the opposite side of the basin at each ladder. Minimum flows needed for effective passage at the historic Granlees Dam fish ladders were about 150 cfs. In 2000, the south ladder was rebuilt and the North ladder was modified. Modifications to the North ladder improved passage, but California Department of Fish and Wildlife (CDFW) and National Marine Fisheries Service (NMFS) criteria were not achieved. Surveys conducted since the modifications suggested that the North ladder still posed a significant challenge to upstream migrating salmon. In the Summer of 2011, the Fishery Foundation of California (FFC) completed significant modifications to the North ladder to meet CDFW and NMFS criteria for fish passage.

Late fall run Chinook return in to the Sacramento River and its tributaries in early November through February, with spawning occurring from January through mid-April. Winter run Chinook return as early as December with spawning from April through August. Spring run Chinook return in late January through August, with spawning occurring from mid-August through October. Fall run Chinook return from June through November and spawn from early October through late December. Steelhead migration can start in fall but is primarily during winter and spring, with spawning occurring December through April.

Project Purpose

The purpose of the project was to remove the last partial fish barrier on the Cosumnes River, providing access to 7.2 more miles of spawning habitat for adult fall-run Chinook salmon and steelhead

California Fish Passage Forum

Barrier Removal Effectiveness Monitoring

PROJECT AT-A-GLANCE

Project Title: North Granlees Dam Fish Passage Improvement Project

Project Applicant: Fishery Foundation of California

Partners: California Department of Fish and Wildlife and NOAA Fisheries.

Project funding provided by: US Fish and Wildlife Service

Groups Conducting Monitoring: Fishery Foundation of California

Project Location: Cosumnes River near Rancho Murieta, California

Monitoring Timeline

Monitoring in the Fall/Winter following construction did not yield any meaningful results as the river did not connect until late winter, which was after the fall-run Chinook salmon run was finished. Trevor Kennedy of the Fishery Foundation of America has been monitoring salmon on the Cosumnes Rivers since 1998, and intends to continue monitoring on the river. In addition, the Anadromous Restoration Program has been monitoring fish populations on the Cosumnes River since 2009, and plans to continue monitoring for an additional two years.

Monitoring Purpose

Monitoring was conducted to determine the presence and distribution of anadromous fish in the Cosumnes River after fish passage barrier remediation. In addition, monitoring this project will also provide information on how long it takes salmon to migrate past this structure compared to pre-project conditions.

Monitoring Methods

The FFC installed a VAKI River watcher camera and fish counting station at the upstream outlet of the modified ladder for the entire migration period.

Monitoring Results

Salmon were not observed in the ladder until the Fall of 2012. The Riverwatcher system and camera documented over 400 adult Chinook and 6 adult steelhead that migrated through the ladder between mid-August and early January. Point observations by FFC staff suggest that average ascent times for the modified ladder were about 15 minutes compared to just under two hours prior to modifications. Additional monitoring is planned for future years, depending on additional funding availability (not associated with the funding initially provided for the fish passage improvement project).

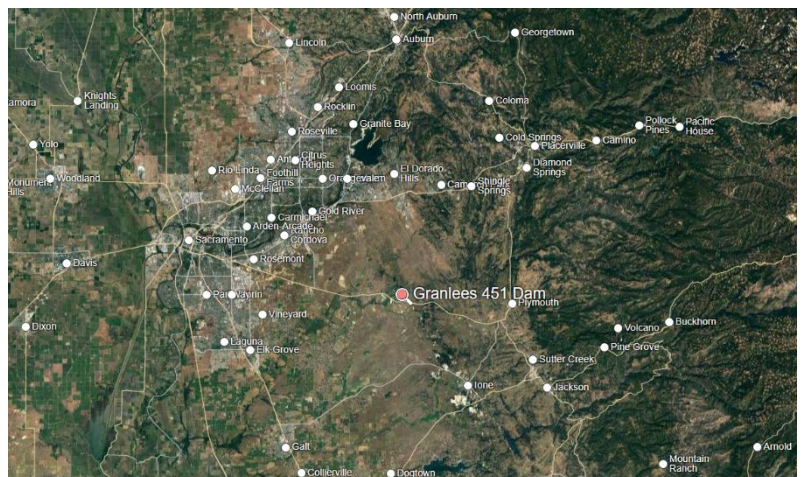


Figure 1. Map showing location of Granlees dam project (right). Figure 2. The completed project provides a runway for fish to migrate upstream.



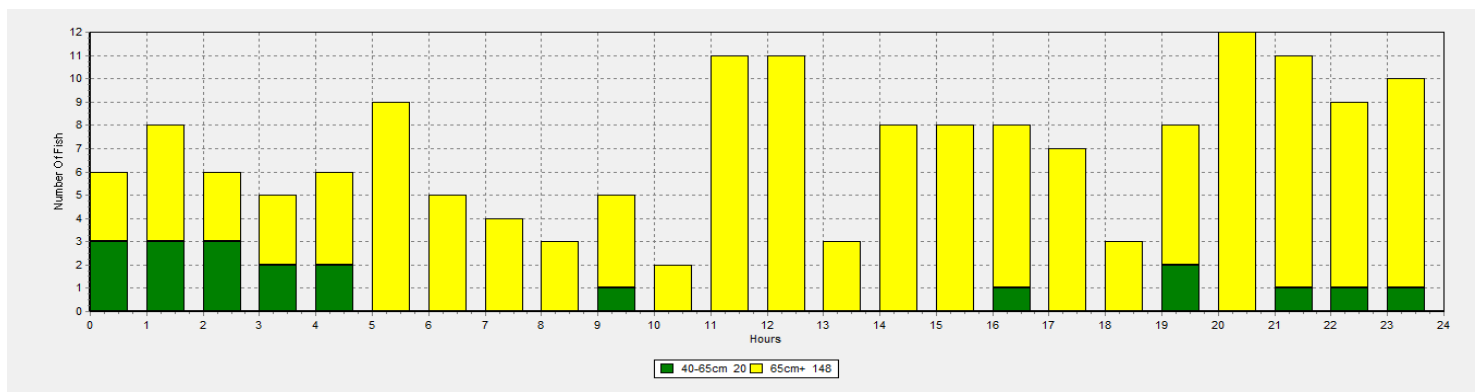
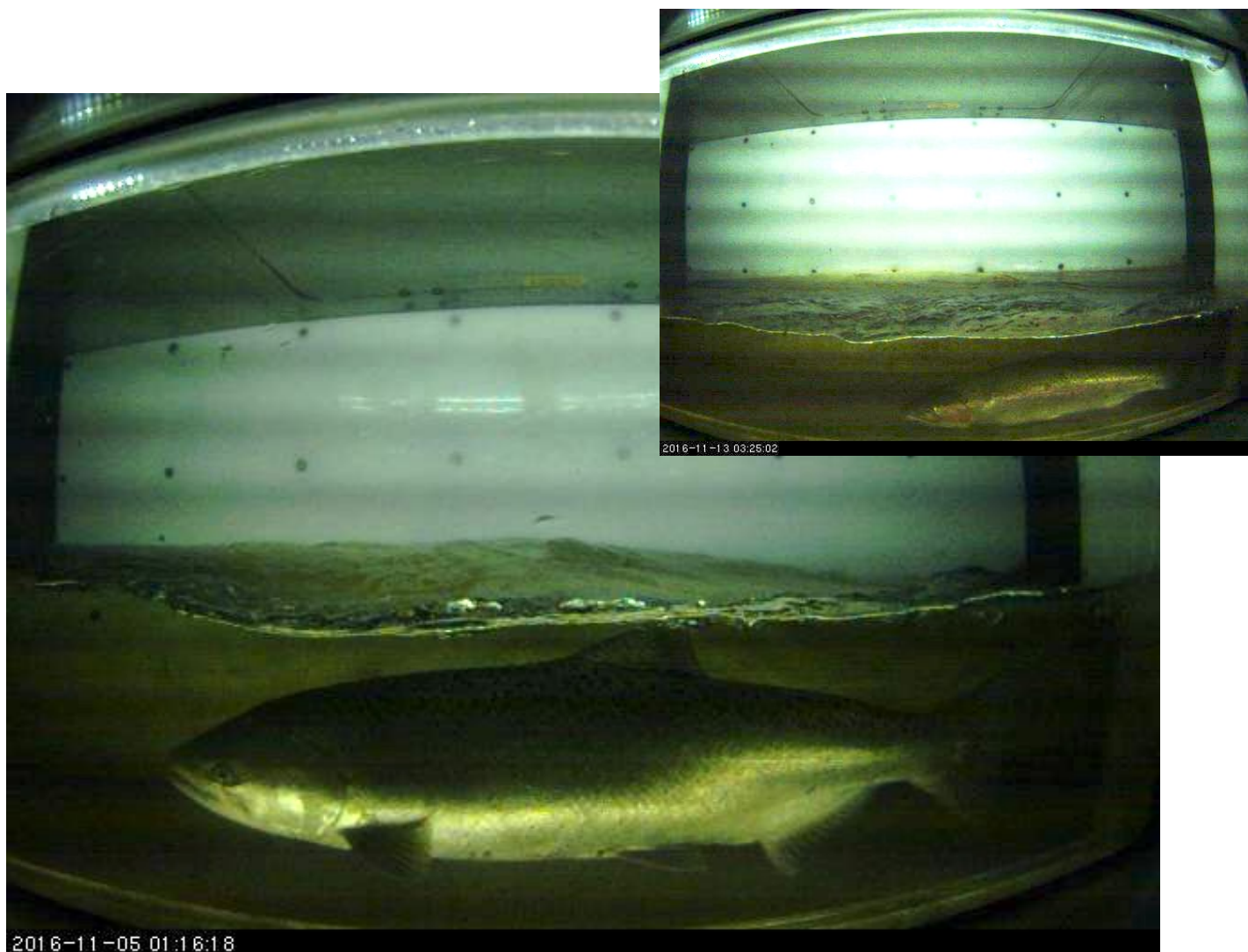


Figure 3. Fish observed at the site from 10/18/2016 through 12/28/2016.



Figures 4 and 5. The VAKI Riverwatcher Fish Counter remotely monitors fish in using infrared scanning technology and high-resolution cameras. These photos show fish moving through the Granlees Dam fishway (top right – steelhead; bottom – Chinook).