Upper crossing from the downstream side after construction.

California Fish Passage Forum

Barrier Removal Effectiveness Monitoring

Dunn Creek Fish Passage Project Effectiveness Monitoring

PROJECT AT-A-GLANCE

Project Title: Dunn Creek Fish Passage Project

Project Applicant: Soper-Wheeler Co, LLC.

Partners: Mendocino County Resource Conservation District, Humboldt Fish Action Council, California Department of Fish and Wildlife, NOAA Fisheries

Project funding provided by: NOAA Fisheries, California Department of Fish and Wildlife, landowner

Groups Conducting Monitoring: Ross Taylor and Associates, NOAA Fisheries, Humboldt County RCD, California Department of Fish and Wildlife, Humboldt State University, NOAA/CCC Veterans Corps, and others.

Project Location: Dunn Creek near the town of Rockport in Mendocino, County.

Background

Dunn Creek is a tributary to the North Fork Cottaneva Creek near the town of Rockport in Mendocino, County. Dunn Creek is a second order stream that drains a two-square mile watershed. The creek supports anadromous steelhead trout (*Oncorhynchus mykiss*) and coho salmon (*Oncorhynchus kisutch*). About ¾ of the land ownership within the Dunn Creek sub-basin is managed for sustainable timber production.

Three culverts on private land were complete barriers to fish passage. They included:

- A 36-inch diameter culvert located 60-feet south of the lower bridge crossing was removed and the tributary stream was rerouted through a newly constructed side channel with two boulder weirs.
- An 8-foot diameter culvert at the middle crossing was removed and replaced with a 16-foot wide by 40-foot long bridge.
- A 7-foot diameter culvert at the upper crossing was removed and replaced with a 16-foot wide by 50-foot long bridge.
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In addition, six boulder weirs were installed in the channel.

All three culvert upgrade sites (Figures A–F) are located upstream of another site and fish passage barrier remediation project along CA-1 that improved passage conditions for juvenile and adult salmon and steelhead in 2013. The site had a nine-foot diameter steel plate pipe culvert that created a six-foot vertical drop and barrier to fish passage downstream. The culvert was removed and replaced with a 134-foot long concrete slab bridge.

Project Purpose

The purpose of the project was to improve adult and juvenile fish passage, and enhance salmonid rearing by upgrading three road crossings on Dunn Creek, restoring access to habitat for coho salmon and steelhead-trout in the Cottaneva Creek watershed.

Monitoring Timeline

Pre-project surveys, consisting of streambank observations and electrofishing, were conducted for several years prior to the planning and implementation of this project. Adult spawner surveys were conducted in 2015.

Monitoring Purpose

Monitoring was conducted to determine the presence and distribution of anadromous fish Dunn Creek in 1995 as well as post-project, in 2015.

Monitoring Methods

Observations of fish from stream banks and electrofishing (per CDFW's California Salmonid Habitat Stream Restoration Manual) were used to determine fish presence and distribution during 1995 surveys.

Adult spawner surveys were conducted in 2015 to detect the presence of redds, live fish, and fish carcasses.

Monitoring Results

2009

In August of 1995, Craig Mesman (CCC) and Kyle Young (WSP/AmeriCorps) electrofished three sites on Dunn Creek (CDFW Stream Inventory Report 1995).

- The first site sampled included habitat units 8-12, three pools, a step run, and a riffle approximately 249 feet from the confluence with Cottaneva Creek and within the F4 channel type reach. This site had a length of 170 feet. The site yielded thirty-six 0+ steelhead, one 1+ steelhead, and four Pacific giant salamanders.
- The second site included habitat units 159-166, a series of pools, runs, and riffles located approximately 4,484 feet above the creek mouth and within the G4 channel type reach. This site had a length of 368 feet. The site yielded fifteen 0+ steelhead, one 1+ steelhead, and one Pacific giant salamander.
- The third site sampled included habitat units 198-201, a series of remnant pools located approximately 5,682 feet above the creek mouth and within the E4 channel type reach. The site had a length of 194 feet, of which only about 30 feet were actually wetted. The site yielded four 0+ steelhead.

2015

MESHR biologists conducted two adult spawner surveys on Dunn Creek in 2015. The first survey on January 14, 2015 resulted in no redds, live fish, or carcass observations within a 7,600-ft. survey reach. A second survey on March 3, 2015 resulted in the observation of 5 redds in the survey reach, between the 2nd and 3rd bridge crossings. No adult fish or carcass were observed in the vicinity of the redds, but it is believed they were created by steelhead trout, based on timing, redd size and the steep gradient downstream. These redds are believed to be the first documented proof of successful fish passage above the Caltrans Hwy 1 Bridge Project since its completion in 2013, and above two of the three former culvert barriers, which were replaced with bridges in 2011.

2016

The third post-treatment spawner survey was also conducted by MESHR Biologists on February 9, 2016, which resulted in locating two redds between 5,200 ft. and 6,300 ft. upstream from the confluence with North Fork Cottaneva Creek. No live fish were observed but two adult carcasses were recovered. One was positively identified as a male steelhead (about 27 inches total length), and the other consisting of adult skeletal remains (about 26 inches total length). It was unable to be identified to species due to the severity of decomposition. Neither carcass was located within the vicinity of a redd.

The 134-foot slab bridge (top photo) replaced a nine-foot steel plate pipe culvert that created a six-foot vertical drop and barrier to fish passage downstream. Photo credits: Caltrans (top).

The following six photos are from Soper-Wheeler Co, LLC. and include before and after photos from the three culvert replacements on private land.

A. Upper crossing before construction.

B. Upper crossing after construction.

C. Middle crossing before construction.

D. Middle crossing after construction.

E. Lower crossing before construction.

F. Lower crossing after construction.