NOAA FISHERIES

Restoring Passage for Migrating Fish

Success stories from the West Coast

Across the West Coast, NOAA Fisheries is working with partners to open streams and restore habitat for migrating fish. From replacing culverts to designing innovative dam passage routes, NOAA Fisheries works to ensure fish are able to complete their life cycle safely. Here are examples of ways NOAA Fisheries is working to improve fish passage on the West Coast.

Washington's Skagit River Delta

Fisher Slough is a tidally influenced wetland and farmland complex located in the Skagit River delta of Washington State. The Skagit River supports an abundance and diversity of fish and is one of the only rivers that supports all eight species of migratory salmon and steelhead.

Fisher Slough before restoration. Photo: Kristen Morse

For farmers and residents in the 23 square mile area around Fisher Slough, springtime flooding is a persistent problem. The diking and drainage systems originally built in the 1930s to reclaim the land for farming have aged and are inefficient and require ongoing maintenance. The aging infrastructure that is supposed to protect communities and agricultural fields can only protect them from minor floods; larger floods still impact the community. At the same time, the diking structures restrict salmon habitat and undermine the recovery of threatened Chinook salmon and other salmon species.

NOAA, partnering with The Nature Conservancy, Skagit County Dike District 3 and Drainage District 17, found a solution that serves both farmers and fish. With support from the American Recovery and Reinvestment Act, they replaced antiquated floodgates with self-regulating gates that allow increased fish passage. They also built setback levees to restore important tidal channel habitat and improve flood control.

As a result of this project, 16,000 more young Chinook salmon are expected to migrate out through Fisher Slough to the Skagit and into Puget Sound every spring.

Fisher Slough after restoration. Photo: OneEarth Images

Soda Springs Dam before construction. Photo courtesy PacificCorp

Soda Springs Dam after construction was complete. Photo courtesy PacificCorp

Oregon's North Umpqua Hydroelectric Project

Deep in Oregon's Umpqua National Forest, the North Umpqua Hydroelectric project has generated enough energy to power 40,000 homes. The project is owned and operated by PacifiCorp and includes eight facilities that impede the migration of Chinook and coho salmon, steelhead, and Pacific lamprey.

In 2012, as part of its license renewal process, PacifiCorp completed a multi-year construction project to add upstream and downstream fish passage facilities at the North Umpqua project. At 77-foot tall Soda Springs Dam, engineers tackled the narrow confines of the rugged landscape to install a new fish ladder for upstream passage and screens on the intake to divert downstream-migrating fish around the turbines.

Migratory fish are expected to traverse the 600-foot long ladder that winds back and forth at the base of the dam, an obstacle fish encounter after swimming 180 miles from the Pacific Ocean to spawn. Once the fish have access to spawning habitat above the dam, NOAA Fisheries expects an overall annual increase in the North Umpqua River of 200-600 Chinook salmon and steelhead.

San Clemente Dam. Photo courtesy California American Water

Carmel River below San Clemente Dam. Photo courtesy California American Water

California's San Clemente Dam

San Clemente Dam is a 106-foot high concrete arch dam located on California's Carmel River. In the early 1990s, the dam was deemed a threat to human safety, cited as inadequate for seismic stability and flood control. After years of study, dam removal was determined to be the appropriate course to address these issues.

The dam's removal began in 2013 and is expected to take three years. Construction activities completed in 2013 included the development of a new access road, preparation of the 68-acre construction site, partial construction of the Carmel River diversion system, completion of geotechnical investigations, and relocation of fish and wildlife. In 2014, efforts will focus on completing the diversion system, permanently rerouting the Carmel River to an alternate course that bypasses the 2.5 million cubic yards of sediment that has accumulated behind the dam, and stabilizing the sediment in place. Full dam removal, fish passage, and habitat restoration will be completed in 2015.

With the complete removal of San Clemente Dam and accompanying habitat restoration efforts, threatened steelhead trout will be provided with access to over 25 miles of spawning and rearing habitat.

More fish passage success stories…

NOAA Fisheries & fish passage solutions: http://www.westcoast.fisheries.noaa.gov/fish_passage/solutions/index.html

On-the-ground action:

http://www.westcoast.fisheries.noaa.gov/stories/recent_stories.html