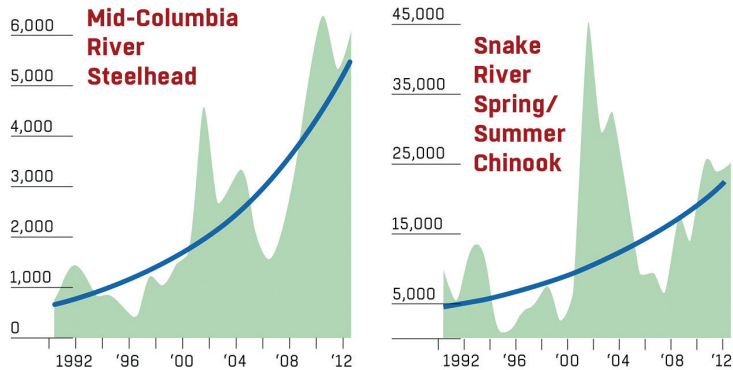


Fish returns are improving

Last year almost a million fall chinook salmon returned to Bonneville Dam, the most since counts began in 1937. Based on 10 years of data, wild chinook populations on average have more than tripled in abundance and wild steelhead on average have more than doubled.

This year's spawners benefited from good river flows when they were young and productive ocean conditions as adults. Fishery managers are predicting strong returns of wild and hatchery-raised salmon to the Columbia River in 2014.



Graphs show most recent data on the number of natural origin (wild) adult fish returning to spawn. (Mid-Columbia steelhead estimate is based on data for the Yakima River Major Population Group.)



The site of former Hemlock Lake, in southwest Washington's Wind River, less than a year after Hemlock Dam was removed. Photo courtesy of Bengt Coffin, U.S. Forest Service.

Bringing fish back to Columbia Basin rivers

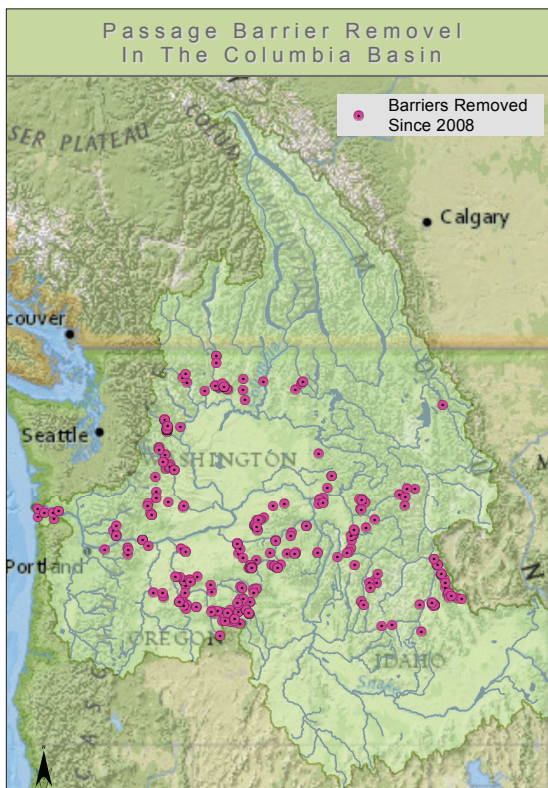
The Bonneville Power Administration and its partners are actively expanding the reach of Columbia Basin salmon and steelhead by improving dam passage, removing barriers and rehabilitating degraded habitat. The federal program to protect these fish is the largest of its kind in the nation.

The program has increased survival of fish passing mainstem dams, returned fish to stretches of tributaries where they had been absent for decades, managed predation and modernized hatcheries. The success hinges on partnerships between BPA, the Corps of Engineers and Bureau of Reclamation and tribes, states, local and non-government organizations.

Opening up prime fish habitat

Since 2008, BPA and its partners have:

- Opened up over 2,470 miles of habitat — more than twice the length of the entire Columbia River.
- Restored more than 254,125 acre-feet of water to streams through water transactions and irrigation improvements — more than enough to serve the annual usage of a city the size of Seattle.
- Restored and protected over 4,000 acres of estuary floodplain.



BPA and its partners have opened up over 2,470 miles of habitat — more than twice the length of the entire Columbia River — through addressing irrigation diversions and dams, culverts, and dikes that block passage.

For more information, visit www.salmonrecovery.gov



These projects address irrigation diversions and dams, culverts and dikes that block passage. They replace water withdrawals that reduce important fish habitat. They restore side channels that were cut off from the main river. Scientists believe that mitigating for climate change will involve many of these approaches.

Reviews and monitoring have consistently reported barrier removal or installation of new or improved fish passage as one of the most cost-effective and highest priority habitat improvement measures for salmon and steelhead. Studies have shown that fish rapidly colonize previously blocked or less accessible areas.



Culvert replacement in Hepner Creek, Lower South Fork of the Clearwater River. Photo courtesy of Nez Perce Tribe Watershed Restoration Division.



Removing Dutch Flats Dam, built circa 1919, near Troy, Idaho. Photo courtesy of Ken Stinson, Latah Soil and Conservation District.

Reintroducing salmon to streams and rivers

Through scientifically managed hatchery programs, BPA is providing funding to tribes and states to re-introduce salmon to areas where they were extirpated.

- Spring chinook in the Umatilla, Okanogan and Walla Walla subbasins
- Sockeye salmon in the Snake River
- Coho in the Umatilla and middle and upper Columbia subbasins
- Spring chinook in the Hood River drainage

Safe passage at the dams

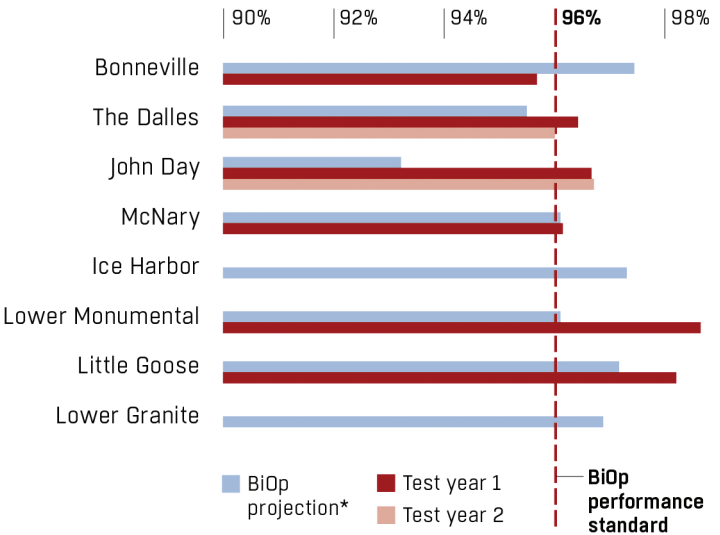
Improving fish passage through the federal dams on the Columbia and Snake rivers is key to our program. Surface passage is now installed at all eight of these dams, allowing juvenile salmon and steelhead to pass dams at the surface, where they naturally migrate.

Combined with refined spill operations, surface passage has reduced the percentage of fish that go through powerhouses, turbines and bypass facilities, decreased fish travel time through the system and increased overall dam survival. (Northwest Fisheries Science Center, 2014)

On the lower Snake River, tailored spill and surface passage have resulted in fewer than 10 percent of juvenile fish passing through turbines at each of the dams.

The federal action agencies are on track to meet in river survival, juvenile survival and adult survival standards or targets in NOAA Fisheries’ biological opinion for operation of the federal dams to protect threatened and endangered salmon and steelhead.

Yearling chinook dam passage survival



Scientifically designed tests in 2010, 2011 and 2012 showed dams are on track toward meeting the BiOp performance standards for juvenile salmon and steelhead dam passage survival by 2018. Juvenile fish in-river survival and travel time have also improved.



Steelhead returned to spawn in this reach of Idaho’s Yankee fork just months after this side-channel reconnection project was completed. Photo courtesy of Trout Unlimited and Bureau of Reclamation.