

# Klamath River Renewal Project

*A cooperative effort to revitalize the Klamath River*

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## How will dam removal help salmon and trout populations?

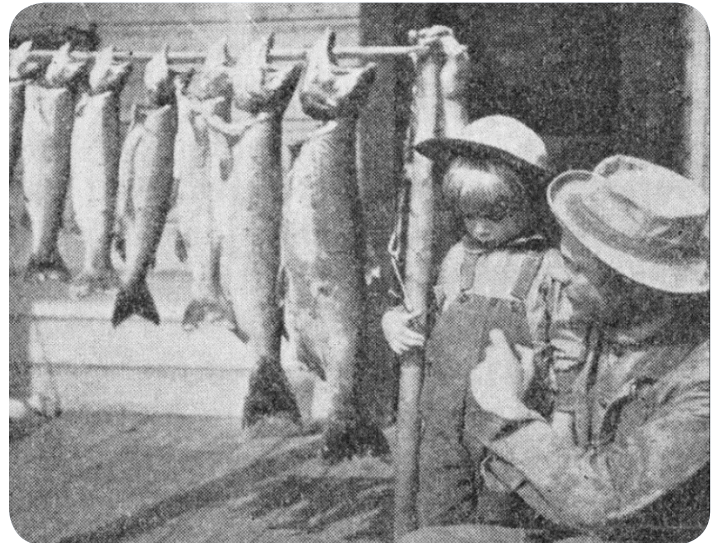
- Improves water conditions, including temperature and dissolved oxygen
- Improves fish habitat and reduces fish disease in the mainstem by creating free flowing water and sediment
- Allows access to cold water habitat in the mainstem and tributaries above the existing sites of the dams
- Reduces reservoir algae toxins which build up in fish

Based on studies completed by Department of Commerce NOAA Fisheries (NMFS), the Klamath River Renewal Corporation (KRRC) anticipates increases in fall-run Chinook productivity, tribal harvest, and ocean commercial harvests from the combination of dam removal, restoration, and fish passage at Keno Dam under the Amended Klamath Hydroelectric Settlement Agreement. Experts widely agree that increased populations of other migratory fish including Coho Salmon, steelhead, Pacific Lamprey, and spring-run Chinook Salmon are also expected. Ongoing restoration work in the Upper Basin would further contribute to improved river conditions and increases in fish populations.

Future fish passage improvements at Keno Dam along with the existing passage facilities at Link River Dam could complete the migration corridor from the ocean to the Upper Basin.

The benefits of dam removal will be reviewed by the Federal Energy Regulatory Commission's (FERC) National Environmental Policy Act (NEPA) analysis and the State Water Resources Control Board's (SWRCB) California Environmental Quality Act (CEQA) analysis.

*Dam removal can help augment sport fishing on the Klamath River. River-based recreation and commercial fishing economies stand to benefit from the KRRC project.*



Chinook above Copco prior to Dam Construction, 1902  
(Credit: San Francisco Public Library)



Chinook, Klamath River (Credit: Mid-Klamath Watershed Council)

### Why does temperature matter?

Temperature affects the timing of migration and spawning, egg incubation and hatching, feeding and growth rates, responses to predation, and susceptibility to disease.





Coho Salmon in the Klamath Basin

(Credit: Klamath Dam Removal Overview, Report for the Secretary of the Interior, 2013)



Steelhead



Pacific Lamprey

## What was the historic range of salmon in the Upper Basin before dam construction?

Before Copco Dam was built in 1906, salmon reached the Upper Basin in large numbers and supported a vigorous fishery. Multiple studies, including a 2005 comprehensive analysis of the distribution of salmon before dams (that includes references to primary sources and historic photos) and more recent genetic studies, have shown salmon migrated to the Upper Basin before the dams blocked their passage.

## Will the salmon return to their original habitat when the dams are removed?

Scientists have found that exploration of new habitat is an innate component of Chinook and Coho salmon breeding behavior. Salmon have spawned upstream of former dam sites or above dams with fish passage as quickly as the first spawning period after access has been provided. After removal of dams on the Elwah River, Chinook Salmon regained access to the area above the dams for the first time in a century. Similarly, at two dam removal sites on the Rogue River in southern Oregon, fall run Chinook Salmon used spawning habitat that was formerly inaccessible under reservoirs in the first fall following dam removal.

*“We recognize the importance of restoring healthy fish populations to the Klamath watershed, which is the reason that we are heavily invested in it and have made recovery of species one of our primary goals.”*

Brad Kirby, Manager of Tulelake Irrigation District and Former President of the Klamath Water Users Association

## Why are Coho Salmon endangered? I can buy them at the grocery store.

Klamath River Coho are listed as “threatened” under the Endangered Species Act (ESA) because of low populations. Klamath Coho have different genetics than other Coho species that are commercially harvested. Klamath Coho are adapted to live in the unique habitats and conditions of this region and are best suited to deal with future changes due to their genetic diversity. Commercial harvest of Coho Salmon primarily occurs in Alaska where most populations are considered healthy. Small, regulated commercial salmon seasons do occur in Washington, Oregon, and California with regulations set annually to protect listed species and depressed stocks. Currently, no commercial harvest of wild Coho Salmon is permitted in Oregon or California.

## Are there alternatives to dam removal, like fish ladders?

KRRC is a single-purpose organization charged with carrying out dam removal. Federal and state environmental reviews (CEQA, NEPA) will analyze alternatives and determine if dam removal is the best option to improve fish populations.

## Won't the sediments harm fish immediately after dam removal?

The impacts from dam removal on lower river species are expected to be short term, lasting 1-2 years with populations recovering from sediment impacts within 5 years. To mitigate the impact of the first sediment flush, KRRC will perform reservoir drawdown in January and February when salmon are most sparse in the mainstem Klamath River and are primarily present in tributaries and the ocean. State and federal agencies will analyze impacts and determine if the long-term benefits to fisheries outweigh the short-term impacts.

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