



Expanded habitat projects target biological needs

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The federal agencies that manage the Federal Columbia River Power System – the U.S. Army Corps of Engineers, the Bureau of Reclamation and the Bonneville Power Administration – have proposed a comprehensive set of actions to help Columbia River Basin salmon and steelhead listed under the Endangered Species Act. In its biological opinion (BiOp) for the FCRPS, NOAA Fisheries evaluated the action agencies' proposal and added some additional items to establish a set of actions known as a "Reasonable and Prudent Alternative" (RPA). The BiOp concludes that, with the RPA, ESA-listed Columbia River Basin fish will be on a trend toward recovery.

The RPA includes expanded programs to protect and improve tributary and estuary habitat. These programs address specific factors that limit fish survival and contribute to their decline.

The FCRPS agencies are committing to fund specific habitat quality improvements for individual populations of these fish.

The **tributary habitat program** expansion targets populations with low productivity or other significant deficiencies related to habitat quality. We are restoring spawning and rearing habitat, opening channels for fish passage and leaving more water in streams where these fish live. We are adding many more actions, particularly in the areas where the targeted populations spawn and rear, including the Upper Columbia fish in eastern Washington and the Snake River fish in eastern Oregon.

The **estuary habitat program** will improve survival for all populations, especially those that remain in the estuarine shallow water habitat for longer periods of time before they enter the ocean. We are protecting and restoring riparian and off-channel habitat and reconnecting flood plains. We are also developing a program to remove pilings

and dikes to increase fish access to productive habitat and reduce predation from birds.

Below are some examples of the habitat projects and the fish they will help.

Snake River spring/summer Chinook and steelhead

Grande Ronde and tributaries

- Fish passage improvements on the Lostine, Wallowa and Joseph Creek watersheds to allow fish access to diversity of habitats.
- Channel enhancement and wetland restoration in Willow Creek and Indian Creek to improve river channel characteristics.
- Culverts/irrigation diversion improvements in Catherine Creek to improve fish passage.

Salmon River and tributaries

- Water diversion removal or replacement to restore fish habitat in the Little Salmon and Lower Salmon rivers.
- Road decommissioning, road improvement, habitat restoration near mining sites in Big Creek watershed to remove migration barriers and improve spawning and rearing habitat.



- Mine rehabilitation and riparian restoration, provide for salmon passage at stream crossings associated with mining activities to reduce chemical pollution and sediment effects, improve spawning success.

Clearwater and tributaries (Snake River steelhead only)

- Road decommissioning, culvert removal, noxious weed control, riparian rehabilitation on Lower Lochsa to reduce sediment effects, provide cooler water and more nutrients for spawning, create access to diversity of habitats.
- Channel straightening, riparian rehabilitation; culvert replacement to create more pools and deeper pools, shade and nutrients; correct for dredge mining effects and improve fish passage on Newsome Creek.
- Land acquisition and conservation easements; road improvement and decommissioning; weed control; culvert removal or replacement to remove sediment effects, create passage; correct for dredge mining effects; improve passages on the American River.

Upper Columbia River spring Chinook and steelhead

Wenatchee River

- Installing fish passage structure on Nason Creek to reconnect 0.6 miles of fish habitat.
- Installing fish passage structures in Alder Creek, Clear Creek and Beaver Creek to provide 4.0 miles of spawning and rearing habitat.

Okanogan River (steelhead)

- Land acquisition to preserve riparian and floodplain function.
- Water acquisition to improve water quantity and streamflows.

Lower Columbia River

Hood River (coho, spring Chinook and steelhead)

- Install fencing, plant vegetation, install fish screens and fish passage structures; plant vegetation; improve channel connectivity; remove/modify dams in Hood River subbasin to support wild fish spawning and rearing; conduct supplementation efforts in the Hood River Production Program.

Wind River (steelhead)

- Remove the Hemlock Dam on Trout Creek to restore fish passage, improve water quality and habitat; channel realignment.