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DAM PLAN CONFRONTS FORMIDABLE OBSTACLES

Agencies must improve Willamette Basin dams while balancing interests

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LOWELL — The rotary screw trap at a fish-counting apparatus at the base of Lookout Point Dam looks part giant metal funnel, part sieve. How many salmon make it through unscathed is of particular interest to the U.S. Army Corps of Engineers, which operates 13 dams along the Willamette River.

The dams — which keep the flood-prone river and its tributaries in check while providing otherwise clean electricity and recreation opportunities — have one major drawback. They block salmon from their historic range: the meandering mountain rivers, streams and creeks that provide spawning and rearing habitat for the iconic species of the Pacific Northwest.

Now a federal agency has told the corps that it must do more to protect salmon and steelhead, both at risk of extinction with dismally low numbers compared to their historical runs. The National Marine Fisheries Service, the federal agency that functions as a watchdog for at-risk ocean-going species, wants a range of changes on the Willamette River dams and outlined them in a lengthy document issued in July.

Those improvements range from straightforward monitoring efforts to complicated fish-sorting and transporting systems that present both engineering and technological challenges and could cost hundreds of millions of dollars.

It's a tall order for an agency already balancing sometimes competing needs for electricity, flood control, irrigation and recreation. For many years, the corps didn't even employ a fisheries biologist at Lookout Point. Now salmon survival must be an integral part of its management discussions.

“We are looking more carefully at every decision we make in regard to how we manage water,” said Greg Taylor, supervisory fisheries biologist for the corps’ Lookout Point projects. “In the past, the fisheries issues were generally a small piece of the pie.”

Degraded habitat

A century ago, 250,000 to 300,000 chinook salmon flooded the Willamette River and its tributaries each spring when high water flows made the falls at Oregon City passable. This year, state biologists estimate that just 34,000 adult chinook returned, 90 percent of them hatchery-raised rather than wild fish.

The Willamette basin dams, built between 1941 and 1969, supply about 180 megawatts of electricity annually, enough to power a community half the size of Eugene and about 2 percent of the annual federal hydropower generated in the Northwest.

These dams — called high-head dams — can completely block the flow of the rivers they span. They safeguard communities from Lowell to Salem from annual flooding that was common before the dams were built. They differ from the low-head dams on the Columbia in that they don’t see massive fluctuations in water levels.

Fish ladders were built into the Columbia River projects, but on the Willamette dams, they weren’t an option, Taylor said. Building a fish ladder to feed into a reservoir whose height varies by 100 feet or more each year would have been very difficult.

The Lookout Point dam, 276 feet tall, was built in 1954 a few miles southeast of Lowell. Along with its sister dams — Dexter and Hills Creek — they kept spring chinook out of the largest tributary watershed in the Willamette River basin, well over 100 miles of the fish’s critical habitat.

By 1999, spring chinook numbers had so declined that the fish was listed as threatened under the Endangered Species Act. In its July biological opinion on the impact of the dams, the National Marine Fisheries Service said the chinook face a very high risk of extinction.

It isn’t just the dams. The fish run a gantlet of threats — pesticide pollution, water that’s too warm and a lack of good habitat the fish still have access to.

And then there are the hatcheries.

Once considered a solution to the loss of fish habitat, the hatcheries also have become part of the problem. Their artificial environments produce fish that lack elementary skills. When they breed with the diminishing populations of wild fish, they pass on weakened traits.

In recent years, the corps and the state Department of Fish and Wildlife have worked to improve conditions for salmon on the Willamette, trucking adult fish for release above

the dams. The corps also built a \$55 million temperature control tower on Cougar Reservoir to allow it to better mimic natural temperatures on the McKenzie River.

But the pace of the improvements and the continuing low numbers of salmon worried Willamette Riverkeeper, a nonprofit conservation group, and last year it filed suit against the National Marine Fisheries Service for failing to adequately oversee the corps' salmon mitigation efforts.

"The corps has increased springtime flows, they've looked at improving passage, but that's been a process hampered by lack of resources and attention," said Travis Williams, Willamette Riverkeeper executive director.

That lawsuit was settled in July, and the result is a lengthy list of improvements and alterations to the Willamette dams on a timeline that runs through 2023.

Among the most challenging requirements: getting fish around the dams.

Because fish ladders on these dams are so difficult to build, the solutions will look different for juvenile fish heading seaward and adult fish returning to spawn. And it will probably look different at each dam, Taylor said.

The fish trap the corps uses to measure the impact of the turbines at Lookout Point suggests the majority survive that encounter, Taylor said.

At Fall Creek, a nearby flood control dam with no turbines, the fish aren't so lucky. They travel through a series of pipes with sharp bends and must negotiate a treacherous gate at the end, a process that may be killing as many as 70 percent, Taylor said.

"The bottom line on juvenile fish passage is that each project is unique; some are better than you might expect, and some are much worse. Each will have to be addressed," he said.

The corps must also find a way to keep hatchery fish from mingling with the already small populations of wild salmon that make it up the Willamette to the dams. On the McKenzie, the river that currently has the most viable spring chinook population, that will mean a sorting facility at Leaburg dam that allows hatchery fish to be separated from wild fish headed farther upstream.

Adult fish probably will continue to be trucked around the dams, but with less human handling that stresses the fish.

Like most of the proposed fixes, it will be an engineered solution, not a natural one.

"We're not taking some of these approaches because it's the absolute best approach for the fish. These are the approaches that allow the dams to stay in place and provide their benefit and yet still improve the considerations for fish," he said.

The corps must improve downstream passage at Cougar Dam by 2014, at Lookout Point by 2021 and at Detroit Dam by 2023. Initial water temperature improvements must be in place at Detroit Dam by 2009. The fish sorter system on the McKenzie must be done by 2014. General habitat improvement projects must also be done, with two completed by 2010 and then yearly from 2011 to 2023.

The corps will also be expected to track the effects of its improvements.

No cheap solutions

How much all this will cost is anyone's guess.

Part of the funding will come from Bonneville Power Administration ratepayers. By law, the BPA pays a portion of fish improvement costs at its dams at rates that range from 23 percent to 100 percent of the cost for dams with power generating capability.

Until the corps nails down the details, the costs for the projects won't be known, but similar fish passage efforts have ranged from \$50 million to \$108 million. Congress will have to OK funding for whatever the BPA doesn't cover.

Any cost-benefit analysis needs to include the value Oregon residents receive from the dams themselves, and that adds up fast, Taylor said. The dams save Oregon residents \$1 billion in flood damage costs while they add \$300 million annually in recreation dollars spent, he said.

"When you think of the \$1.3 billion in annual benefits, you can afford to spend some money on some of these fish issues," he said.

Congress may require a little nudge from the community to make sure the corps has the funds to get the job done, said Williams of Willamette Riverkeeper.

"In time, it will take public interest and pressure groups like mine to communicate with our congressional delegates and say it's time to figure out how to direct additional resources to this river," he said.

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