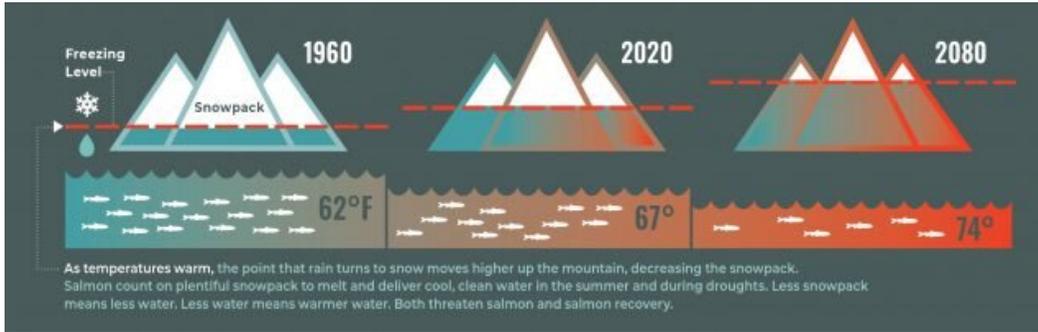


Tech

# Rising water temperatures could result in the death penalty for Pacific salmon

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Several species of salmon are endangered in the Pacific Northwest. The Washington State Recreation and Conservation Department has released a report on salmon population status in the state basins. The findings predict a tough future.

This report was commissioned by the Governor’s Salmon Recovery Office, which was established by the State Legislature in 1998 in response to the

Salmon Recovery Planning Act. The findings showed that 10 to 14 species of salmon in the northwest were “endangered” or 5 were “endangered.”

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The findings are alarmingly consistent with population trends over the last few decades. The once prolific salmon population in Washington has declined over the years and is now estimated to be around 5% of its historic high.

The five salmon and steelheads found to be the most endangered in the report are Snake River Spring-Summer Chinook, Puget Sound Chinook, Ozzet Lake Sockeye Salmon, Upper Columbia River Spring Chinook, and Puget Sound Sound steel head. State area.

A variety of factors are involved in the resources of soaking salmon, many of which are associated with habitat loss and climate change. In the northwest, glacier loss is a crucial factor. Glaciers provide cold water for salmon-spawning rivers. This is an important process for salmon to breed normally. In an interview with Glacier Hub, Professor Daniel Pauly of the Institute for the Oceans and Fisheries, University of British Columbia, said that “melting glaciers means that cold water will not be available from glaciers at the right time.” “If you interrupt this cycle, you will wipe out the fish.”

Average river temperatures in Washington are projected to rise from 3.6 to 10.5 degrees Fahrenheit by the end of this century due to rising temperatures and the loss of glaciers and snow cover.

Increased water temperature has a particularly significant effect on salmon due to the way it lays eggs. Salmon are anadromous. In other words, after being born and matured in a river or stream, they move to the sea and live an adult life. When it's time to breed, salmon return to where they were born from the sea. This is a journey upstream that spans thousands of miles. They die after reaching the place where they were born and spawning.

"Salmon is very sensitive to temperature," said Pauly, a senior researcher at Sea Around Us, a research initiative investigating the global impact of fisheries, who studied extensively the effects of temperature changes on marine life. .. He explained that in warmer waters, salmon metabolism increases, requires more oxygen, and makes migratory fish difficult to travel. "If they try to make these already challenging river rises under oxygen stress, it becomes impossible."

When the salmon population decreases, it has a spillover effect on other organisms. Many predators, such as seabirds, killer whales, and grizzly bears, rely on salmon as their prey. Even trees are suffering. Trees along the banks of salmon-rich rivers in the northwest obtain up to 80% of the important nutrient nitrogen from the decomposed carcasses of salmon that have completed spawning.

Humans are also associated with salmon for food, culture and industry. From the mid-19th century to the mid-20th century, commercial salmon fishing was a major business, with canning factories scattered across the Washington river. Currently, commercial salmon fishermen are struggling.

Salmon has a long history of value. Fish have been the center of life for the first people in the northwest for thousands of years. Today, northwest salmon is as important to the people of the region as ever.

"All salmon are important to tribes, regions and ecosystems," salmon biologist David Trout, director of natural resources for the rainbow trout, told Glacier Hub. "But the most important thing for the people of Niskary is the salmon in late winter. They are the center of Niskary's tradition and culture."

After 34 years of work with the Nisqually, one of the sovereign tribal nations of the Salish Sea, Trout witnessed a decline in salmon populations. "It's painful to see this incredibly important salmon undergoing a rapid and devastating collapse on the Nisqually River," Trout said. "Their number increased from more than 50,000 adults on a regular basis in Nisquarie to about 5,000 last year."

Trout are directly witnessing habitat loss and climate change devastation. "From rising river temperatures and lack of flow in the summer, to increased frequency and magnitude of flood events, impacts on sea level rise and restoration of the Nisquarie Delta habitat, to complete disruption of food webs and offshore flows. Are all killing our salmon. " "Some of these factors can be mitigated, but others are affecting ecosystem processes on a larger regional / global scale and cannot. [be mitigated].. "

The decline in salmon populations in the Pacific Northwest is just one example of how climate change is disrupting fish populations around the world. "People wonder about each species separately," Pauly said. "All fish are affected [by rising temperatures.] You can see the fish moving towards the poles of both hemispheres. Modeling fish behavior in response to predicted seawater warming shows patterns that indicate that this movement is occurring around the world. "

Population changes are not surprising to Pauly. "This is what happens when the temperature rises," he said. "Fish are looking for the temperatures they are adjusting. If those temperatures are further north, the fish will move further north. If you map from Far North Alaska to California, you will find that salmon in California. Resources are essentially dead. Oregon is sick Washington is sick Salmon is sick [British Columbia], which one. They are only successful in Arctic Alaska."

Efforts are underway to restore salmon populations throughout Washington. The basin has been restored. The waterfronts, banks and vegetation that surround the river and provide important shade and food for young salmon have been restored, replanted and protected. Obstacles that prevent salmon from moving through the waterways to the spawning grounds have been removed. Since 2005, 3,300 salmon obstacles such as dams, roads and reservoirs have been removed. But so far, the pace of recovery has been too slow and salmon are still in serious danger. "Salmon tells us that we are failing in our recovery efforts," Trout said.

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A dam blocking the salmon passages on the Nuuksak River in northern Washington was destroyed. Credit: City of Bellingham

"The most promising and sustainable approach to date is a community-based basin-focused," bottom-up "approach to salmon recovery," said Troutt. "This system promised to bring together thousands of friends and neighbors in the community to act for salmon."

These efforts, coupled with a cooperative global response to climate change, may be sufficient to save salmon populations if prioritized. "If people are the cause of the problem, they are also the cause of the solution," Trout said. "Citizens who are enthusiastic, informed, and enthusiastically energized are promises that we can recover salmon."

Water and genes flow between the two largest Baltic salmon rivers  
Provided by The Earth Institute, Columbia University

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**Quote:** The rise in water temperature was obtained from <https://phys.org/news/2021-02-temperatures-death-sentence-pacific-salmon.html> on February 11, 2021 Pacific salmon (February 11, 2021). May be sentenced to death

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