

Executive Summary

Washington State initiated a grassroots approach to salmon recovery in 1998 that was unique in the nation. This biennial “State of Salmon in Watersheds” report takes a look at the state’s more than 10 years of experience to identify trends, call out gaps in knowledge, and discern a path forward to accomplish the State’s vision of restoring salmon, steelhead, and trout to healthy, harvestable levels and to improve the habitats on which they rely.

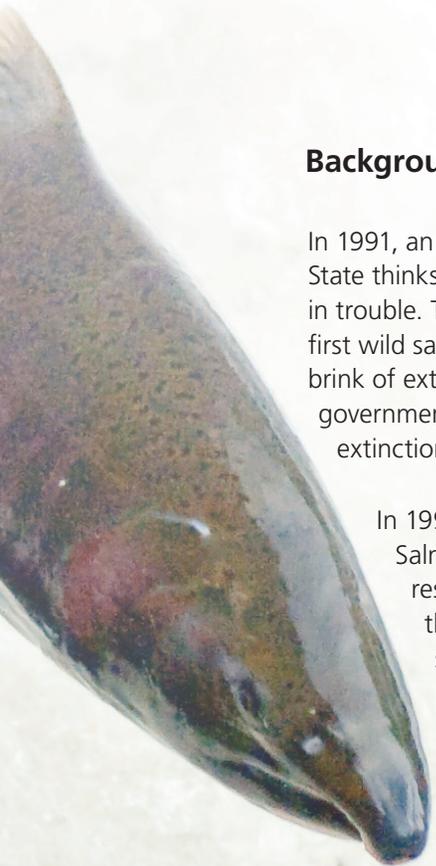
Background

In 1991, an alarm sounded that changed the way Washington State thinks about salmon. The cultural icon of the state was in trouble. That year, the federal government declared the first wild salmon, Snake River sockeye, as endangered, on the brink of extinction. By the end of that decade, the federal government had named 16 more species of salmon at-risk of extinction, covering three-quarters of the state.

In 1998, the state Legislature passed Washington’s Salmon Recovery Act, declaring that it wanted to retain responsibility for managing its natural resources rather than abdicate it to the federal government. The act set in motion one of the most comprehensive and complicated recovery planning efforts in the United States.

Salmon recovery efforts bloomed on many levels. School children planted trees along creeks in the name of salmon recovery. Local communities formed citizen committees to write detailed salmon recovery plans and start restoration projects. Regional organizations formed to organize and guide recovery work. State and federal agencies provided funding, guidance, and monitoring.

By the start of the new millennium, the state had a plan for recovering salmon. Today, more than 10 years later, Washington State has come a long way in its fight to save salmon. The questions this report tries to answer are how far along are we? Are our recovery efforts working?



Statewide Overview

Washington is beginning to see a return on the time, money, and resources it has invested in salmon recovery and watershed health. The statistics collected in this report show progress, and they also reveal just how much work still lies ahead.

Are Salmon Increasing in Numbers?

The number of wild salmon returning to rivers to spawn appears to be increasing for some species, moving closer to recovery goals. Of the listed species, one appears to be near its spawner recovery target, four are on the rise, three are stable, two are decreasing, and two are unclear.

The number of juveniles heading to the ocean, except for steelhead in the upper Columbia River, has not increased. The data, however, doesn't cover enough years to see clear trends in most cases.

ARE WILD SALMON INCREASING IN NUMBERS?

Approaching Goal	On the Rise	Stable	Decreasing	Unclear
Summer chum in Hood Canal	Chinook in Puget Sound	Chinook in the upper Columbia River and Snake River	Steelhead in Puget Sound	Chinook and coho in the lower Columbia River
	Steelhead in the lower, middle, and upper Columbia River	Steelhead in the Snake River	Chum in the lower Columbia River	

Is Habitat Improving to Support Salmon?

Over their life, salmon migrate from freshwater streams where they were born, through many types of environments, before returning to their home streams to spawn the next generation of fish. Many things affect their survival along the way, such as what kind and how much food is available, what predators will eat them, how warm the water is, and whether there is good habitat for them to spawn when they return from their time at sea. Salmon need enough cool, clean water for migrating, spawning, and rearing. Important questions are whether habitat is adequate for them during their life cycles and if the condition of habitat is improving.

- **Habitat** - In the face of our considerable recovery efforts, in the four salmon recovery regions for which there is data, development continues to gobble up more land than is being protected and restored. The increase in developed land from 2001 to 2006 ranged from about 1 percent along the coast to about 3 percent surrounding Puget Sound. Although the numbers are small across the region, effects are concentrated in local areas important to salmon.
- **Water quality** - Statewide, the number of monitoring sites with poor water quality appears to have decreased.
- **Water quantity** - The state's watershed planning efforts have served to protect the amount of water flowing in streams for fish, irrigation, and recreation.

Are Recovery Plans Being Implemented?

Our recovery partners continue to make progress in restoring and protecting priority habitat, improving hatcheries, and making dams more fish friendly. Implementation of some plans is further along than others, but all are making good progress in addressing habitat factors limiting salmon recovery.

Of all the habitat actions on a statewide basis, recovery partners have made the greatest progress fixing barriers to fish passage. They have made the least amount of progress in the more expensive projects to reconnect floodplains with river channels to improve conditions for salmon.

How Has the Money Been Spent?

Recovering salmon takes resources in many forms – community support, funding, changes in law, political support, and raw muscle power.

Salmon recovery funding from state, federal, and local sources administered by the Salmon Funding Recovery Board has totalled \$788 million since 1999. It topped \$110 million in 2008 and has remained relatively steady, averaging \$63 million a year.

Since 1999, the Salmon Recovery Funding Board has awarded nearly \$420 million in grants from its primary state and federal sources. The majority of that funding has been for restoration projects to repair damaged habitat, followed by projects to protect more pristine areas used by salmon.

Our Regional Approach to Salmon Recovery

Washington's grass roots strategy for recovering salmon puts much of the work to develop recovery plans and complete projects in the hands of regional and local agencies and community groups. Locally developed and federally adopted recovery plans have been completed in seven of Washington's salmon recovery regions, and organizations are in place to implement the projects identified in those plans.

The variety of organizations and complexity of issues that regional recovery organizations face varies across the state. They have different species of salmon, different geography and weather, different political concerns, different funding levels, and different partnerships to foster and maintain.

While this diversity makes salmon recovery complex, it also gives it its richness. There is not a one-size-fits-all approach to salmon recovery in Washington. It's that very fact that ensures that a variety of technical experts, government representatives, businesses, farmers, and citizens remain involved and committed to salmon recovery.

In the context of this richness, here are some general observations about each salmon recovery region.

Puget Sound Salmon Recovery Region

- The majority of the people in the state live in this region, which presents major challenges for salmon due to development pressures and human infrastructure needs.
- A Chinook salmon recovery plan is in place, and the status of the fish appears to be improving, but is still well below its recovery goals.
- Listed steelhead appear to be declining, and a recovery plan for them is being developed.
- The plan being put in place to recover the Puget Sound ecosystem will benefit listed and unlisted salmon.

Hood Canal Salmon Recovery Region

- This salmon recovery region, encompassed by the broader Puget Sound region, is the only region-within-a-region in Washington.
- Summer chum salmon are the emphasis of recovery efforts by the salmon recovery organization, and although the numbers of spawning summer chum salmon appear to be approaching recovery goals, much remains to be done so that the fish will persist over the long term.

Washington Coast Salmon Recovery Region

- The health of salmon in this region is better than anywhere else in the state. The only listed species is Lake Ozette sockeye.
- The recently formed salmon recovery organization is developing a coast-wide, regional plan for the long-term protection and restoration of wild salmon across the area.

Columbia River Basin

Five salmon recovery regions exist in the Columbia River basin, four of which are affected by issues in the mainstem of the Columbia River, such as operation of the federal hydropower system, predation on fish as they pass through the lower Columbia River estuary on their way to and from the ocean, and complex harvest and hatchery activities involving our neighboring states. The fifth region exists above Grand Coulee Dam.

Lower Columbia River Salmon Recovery Region

- The region is complex and contains the largest number of listed species in the state. Recovery plans are being implemented for all of the listed species.
- Although the abundance of listed species appears to be stable or on the rise in most cases, limitations in the available data hamper our understanding of the true status of wild fish in some cases.

Middle Columbia River Salmon Recovery Region

- The region faces challenges associated with water storage and agricultural diversions that affect fish passage.
- Implementation of the recovery plan for listed steelhead and bull trout in the region is underway, with the greatest progress having been made in improving conditions for fish passage.
- Efforts to recover middle Columbia River steelhead are shared with the Snake River Salmon Recovery Region, where the Walla Walla portion of the middle Columbia River steelhead reside.

Upper Columbia River Salmon Recovery Region

- Spring Chinook and steelhead are listed in this region, and their numbers appear to be increasing since listing, particularly steelhead.
- Implementation of actions to restore habitat is progressing, with the greatest extent of progress in addressing stream flow and fish passage issues.

Snake River Salmon Recovery Region

- Listed spring and summer Chinook, and steelhead, appear to be below their recovery goals, although spring and summer Chinook have increased modestly since listing.
- Implementation of habitat recovery actions is progressing, with the greatest progress in addressing sediment and fish passage issues.

Northeast Washington Salmon Recovery Region

- A final federally adopted recovery plan is not in place for the listed bull trout in the region, and a regional salmon recovery organization has not formed.
- Work to improve bull trout is underway. Habitat actions to address factors for the decline of bull trout are being implemented by a lead entity operating in a portion of the region.

Threats to Salmon Recovery

Salmon populations didn't decline overnight; they declined over 150 years. The U.S. Fisheries Commissioner reported decreases in Columbia River salmon as far back as 1894. Recovering salmon is hard work, and work that most believe will take decades, if not centuries, to accomplish.

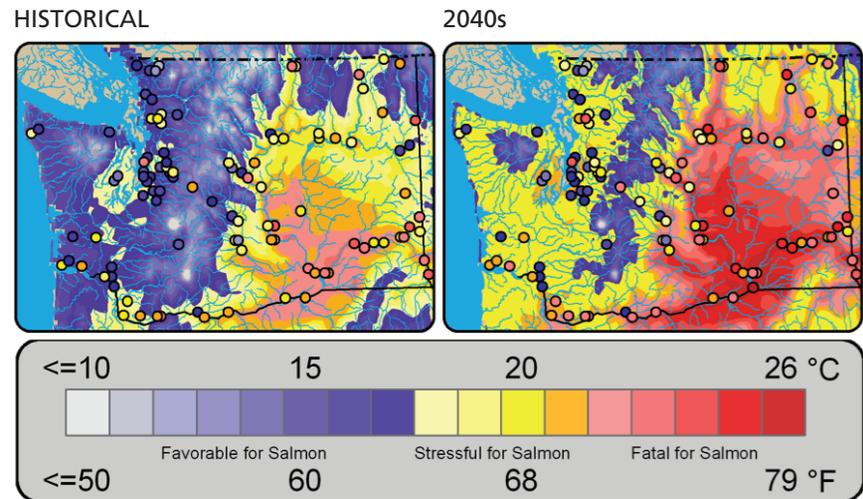
In the late 1800s, the U.S. Fisheries Commissioner identified the biggest human-caused threats to salmon as overfishing, dams, and habitat degradation. Harvest treaties and improvements to dams that enable fish to pass through more easily have changed the primary threats. Today, climate change, habitat degradation from the effect of a growing human population, and uncertain long-term funding for recovery are seen as the primary threats to salmon recovery.

Climate Change

Climate change is projected to affect the Pacific Northwest by raising the average annual temperature by 3 degrees by 2040. The warmer climate will mean more winter rain, instead of snow, which in turn will mean faster running rivers and more flooding in the winter. With less snowmelt to fill streams in the summer, salmon will experience warmer and drier conditions in the summer. These conditions will degrade habitat quality and quantity for wild salmon and impair their ability to survive.

A warmer climate also impacts oceans, affecting the food web. Warmer temperatures inhibit nutrients from deeper, colder ocean depths from rising to the surface. This affects how much food is available for salmon. Warmer ocean temperatures also mean warm-water predators will expand their range into the Pacific Northwest coastal waters. The combination of reduced food, increased predators, and more competition historically has caused salmon to die in the ocean at higher rates. Salmon recovery efforts will need to anticipate and adapt to the effects of climate change.

AUGUST SURFACE MEAN AIR TEMPERATURE AND MAXIMUM STREAM TEMPERATURE



This figure illustrates how summer air and stream temperatures may change from the recent past (1970-1999) to the 2040s. The areas with favorable temperatures for salmon are projected to substantially decrease in western Washington, and in many parts of eastern Washington, temperature conditions are projected to transition from stressful to fatal for salmon.

More People

Salmon habitat is affected by many factors, but primarily by human population growth. The state's population is projected to increase by 1.6 million people by 2030. As Washington's population increases, more of the resources salmon rely on are used up. More land is converted to houses and businesses, more water is used, and more electricity produced by dams is needed. Between 45-62 percent of Washington's estuaries have been lost to diking, channelizations, dredging, and filling, while more than 90 percent of the wetlands in urban areas have been lost. Salmon recovery efforts will need to be prioritized to minimize the effects of population growth.

Uncertain Long-Term Funding

Salmon recovery isn't easy work and it requires many resources, especially funding. Currently, the funding comes from many state, federal, and local sources. Sustaining that funding over a century is challenging and will require communities statewide to continue to prioritize salmon recovery as important work.

Gaps in Information

The ability to track and report progress of salmon recovery depends on the availability of information on a wide range of topics from many sources over time. In most instances, data was available for this report, but had been collected to meet a variety of management needs or legal requirements. In addition, with few exceptions, data emphasized state agency activities. Considerable data exist from other sources that, if available for inclusion in a manner consistent with statewide reporting needs, could enhance future reports.

The data in the report varied greatly across regions, depending on species, local conditions, and available resources to monitor and compile the data. In a statewide context, important gaps exist. Data on numbers of fish tended to be most abundant while data on habitat quality and quantity were least abundant. Gaps in fish data, particularly juveniles, are being addressed consistent with the statewide integrated fish and habitat monitoring framework adopted by the Forum on Monitoring Salmon Recovery and Watershed Health. Similarly, watershed health data should improve in the future, as results from the recently implemented statewide habitat status and trends monitoring program become available. To delist species in the future, sufficient data over time will be needed. We must show improvement, stability, and sustainability of wild salmon and the habitat they depend on.

Conclusions

Washington State has taken a unique approach to salmon recovery – one that involves many people across the state. With 12 years of work behind us, the efforts of Washingtonians are just beginning to reveal trends that could prove promising. The vision in 1998 was that people living near salmon understood best what it would take to restore places for them. And that if we fix habitat and the living conditions of salmon, we are fixing it for many other species of plants and animals, including humans. Salmon are ingrained in Washington's culture and economy. To lose them would be to lose a piece of ourselves. Salmon recovery is important work, that if done well, will benefit not only salmon, but the people who call Washington home.