US Environmental Protection Agency https://www.epa.gov/salish-sea/chinook-salmon

Chinook Salmon

Chinook salmon populations are down 60% since the Pacific Salmon Commission began tracking salmon data in 1984.

First foods ceremonies are one way Coast Salish communities celebrate respect for the earth. In spring, families celebrate the first Chinook salmon caught with First Salmon ceremonies called *Thehitem* ("looking after the fish.") in one Coast Salish language. At the end of the ceremonies the bones of the salmon are returned to the river with a prayer giving thanks to the Creator, Chíchelh Siyá:m, and the salmon people. This is to show that the salmon were well-treated and welcome the following year.

Salmon are an iconic species of the Salish Sea. They play a critical role in supporting and maintaining ecological health, and in the social fabric of First Nations and tribal culture.

Strong commercial and recreational salmon fisheries also make salmon an important economic engine for the region.

Chinook (*Onchorhychus tshawytscha*) are the largest salmon, and are commonly known as "Kings" or "Tyee" (which means "chief" in Chinook jargon).

What's happening?

Just over 473,000 Chinook salmon were reported to be in the Salish Sea in 2018 (Figure 1). This is a 60% reduction in Chinook abundance since the Commission began tracking salmon data in 1984. This estimate does not include the effect of predators who may catch the salmon after they are counted in the river, but before they spawn. This means this estimate may be too high (and successful spawners fewer).

Between 2000 and 2018, the total number of Chinook returning to the Salish Sea has remained fairly steady, but in that time there has been a slight increase in the number caught by fishers and a slight decrease in the number returning to rivers to spawn, especially from 2016-2018.

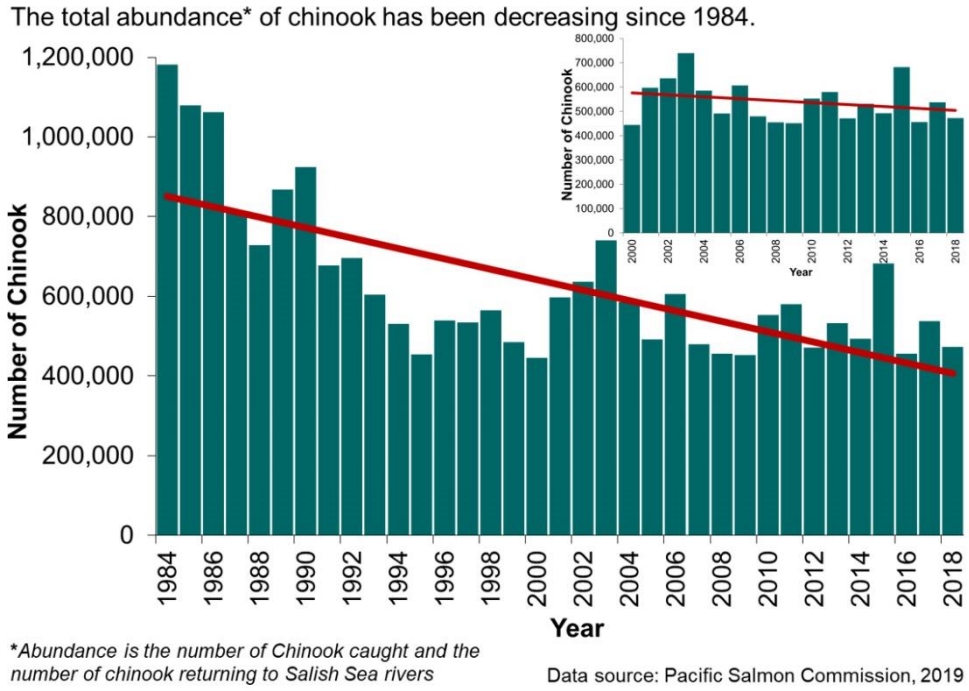

Figure 1| Graph showing total abundance of Chinook salmon in the Salish Sea has been decreasing since 1984. Source: Pacific Salmon Commission, 2019.

Puget Sound was once home to more and larger populations of Chinook and other salmon, with a greater diversity of genetic traits than populations remaining today. Only 22 of 37 historic Chinook populations remain here. The remaining populations have only 10% of the numbers of salmon they once had due to fishing, Salish Sea health, habitat loss, and climate change.

There has been no improvement in the overall number of spawning salmon since 1999 when Puget Sound Chinook were listed as a threatened species under the U.S. Endangered Species Act. In other words, protections put into place under this act are not working.

Why is it important?

Salmon provide food for a variety of wildlife, from bald eagles to killer whales to grizzly bears, *including 137 other species*! Because salmon die after spawning, their carcasses also provide abundant food and nutrients to plants and animals, including tiny aquatic insects and other invertebrates that in turn provide food for other animals.

During their life cycle, salmon transfer energy and nutrients between the Pacific Ocean and freshwater and land habitats. Since Chinook are the largest salmonid, they

contribute the largest amount of biomass (organic matter) per fish to the ecosystem. In fact, in areas that have experienced dramatic declines in salmon, there is a measurable deficit of nutrients to help support the ecosystem.

Economic Impact

Fishing for salmon for a living (commercial fishing) and for sport in the Salish Sea brings in an average of $1.1 billion each year from 2012-2015. This was up from between $13 and $32 million the few years before that.

For British Columbia, commercial fishing employed 2,710 people in 2015 and sport salmon fishing employed 6,480 people that same year. Numbers were lower in Washington where there are fewer salmon now: 2,700 commercial fishing jobs and 3,540 sport fishing jobs. The numbers of jobs available in salmon fishing has decreased over time with the decline in salmon.

Why is it happening?

The steep decline in Chinook salmon is associated with three main factors:

- **Habitat change** – spawning areas lost or damaged from timber harvest, agriculture, urban development, and stormwater pollution.
- **Harvest rates** – Nearly 22 million Chinook were harvested between 1975 and 2018.

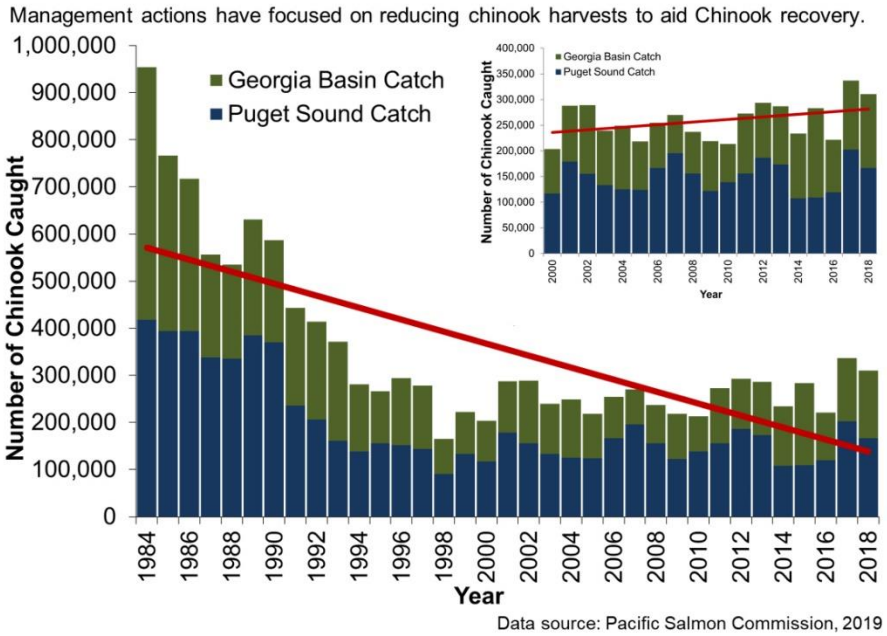

Figure 2| Graph showing declining numbers of Chinook salmon caught in the Salish Sea since 1984. Source: Pacific Salmon Commission, 2019.

- **Hatchery influence** – hatchery salmon can be weaker and less adaptable than wild salmon and impact wild salmon recovery. However, over ¾ of salmon returning to the Salish Sea were reared in hatcheries and orcas and peoples depend on them.
- **Dams** on rivers that prevent migrations to home streams. - Despite spending billions of dollars on ways to direct fish around dams in Washington, Chinook are still declining. Removal of key dams has been proposed to restore Chinook in their main rivers.
- **Climate change** – increased winter flooding smothers eggs with silt and washes juveniles out to sea before they are ready. Dryer summers dry up streams where juveniles are growing. Increased temperatures decrease oxygen in the water, decrease prey available, and increase disease.
- **Ocean conditions** – Survival during salmon's first few months at sea requires safe surface water temperature and salinity (saltiness). Ocean conditions can also affect food supplies, numbers of predators, and migration patterns for Chinook.
- **Marine mammal predators** – With fewer Chinook to go around, sea lions, harbor seals, and orcas are having a big impact on those remaining. Numbers of seals and sea lions has increased since the mid-1970s.

What's Being Done About it?

1850s -The U.S. signed Treaties with the tribes that promised them "the right of taking fish from all usual and accustomed grounds and stations…in common with all citizens."

1974 - The Supreme Court ruling, named the Boldt Decision (for the judge who presided in Tacoma), re-affirmed the tribes' treaty fishing rights when they were being violently abused by state officials and citizens. Today, the tribes and Washington State co-manage salmon recovery and habitat protection.

1985 - The 1985 Pacific Salmon Treaty helped bring a science-based approach to international salmon conservation and harvest sharing.

1999 – Puget Sound Chinook were listed as endangered under the U.S. Endangered Species Act. Also, the U.S. and Canada co-led Pacific Salmon Treaty set aside big money in the Restoration and Enhancement funds.

2000 – The National Marine Fisheries Service mad a rule to prohibit taking Puget Sound Chinook

2005 – Department of Fisheries and Oceans Canada (DFO) started its Wild Salmon Policy to improve salmon habitat.

2008 – The Puget Sound Partnership was formed to implement the Puget Sound Salmon Recovery Plan to protect and restore habitat, raise public awareness, and improve monitoring and management of salmon recovery.

2009 - a fund was started to help fishers not able to fish for Chinook, to support the coded wire tag program (for salmon identification), to improve modeling to estimate numbers of returning salmon, and to manage each stock of Chinook individually.

2011 – DFO started a "license retirement program" to reduce catch of Chinook.

2018 – The Canadian Committee on the Status of Endangered Wildlife assessed southern British Columbia (Canadian Salish Sea) Chinook. They determined that nearly all of the populations they assessed were in danger of extinction (8 populations), Threatened (4), or of Special Concern (1). They will soon be listed as such legally.

2019 – DFO restricted Fraser River Chinook harvesting to allow more salmon to reach their home streams and spawn. Commercial fishing was completely closed until late summer. First Nations fishing for ceremonial purposes and recreational fishing were allowed, but only in small amounts.

Five things you can do to help

1. Keep streams shaded. Trees and native vegetation along shorelines keep the water cool for fish and help stabilize the banks from erosion. Help protect these types of areas in your community and watch for stream restoration projects and opportunities.
2. Keep litter and trash out of streams. Trash can pile up on logs, sticks and other debris and block water flow. Summer is the best time for in-stream cleanup to reduce impacts to key salmon life-cycle stages which typically occur in spring and fall.
3. Help protect natural shorelines, wetlands and floodplains in your community. These habitats are extremely valuable to both salmon and people.

4. Look for sustainably-harvested salmon at your local supermarket or favorite restaurant.
5. Get to know your local watershed group and volunteer to get involved.

Learn more about this topic

The following links exit the site EXIT

- Pacific Salmon Commission
- Fisheries and Oceans Canada - Salmonid Enhancement Program
- Pacific Fishery Management Council
- NOAA Fisheries Salmon and Steelhead
- Northwest Indian Fisheries Commission
- Washington Dept. of Fish and Wildlife "SalmonScape" Mapping System
- Puget Sound Partnership Vital Signs - Chinook Salmon
- Salish Sea Marine Survival Project

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2. Pacific Salmon Commission. 2011. 2010 Annual Report of Catches and Escapements. Report TCChinook (11)-2. Joint Chinook Technical Committee Report. Accessed May 28, 2012.
3. Fisheries and Oceans Canada. 2011- Information Document to Assist Development of a Fraser Chinook Management Plan. Draft for Discussion Purposes (PDF) (81 pp, 41KB).
4. Fisheries and Oceans Canada. 1999. Fraser River Chinook Salmon. DFO Science Stock Status Report D6-11 (1999)(PDF) (7 pp, 1MB). Delta, BC.
5. Fisheries and Oceans Canada. 1999. Lower Strait of Georgia Chinook Salmon. DFO Science Stock Status Report D6-12 (1999)(PDF) (7 pp, 83KB). Nanaimo, BC.