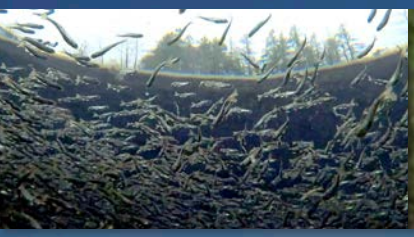


Wild works best

Salmon hatcheries are no silver bullet for rebuilding fish populations

To watch a short film about hatcheries and to learn more about their impact on wild fish, please visit davidsuzuki.org/wildworksbest

DAVID SUZUKI FOUNDATION
One nature.

"Our tradition is that when the fish come back, we pay tribute to them, we acknowledge them and hold our hands up, allowing them to come and feed us. We respect them."

BARRY CORDOCEDO, CHENLH/SXÁLUS, FORMER DEPARTMENT OF FISHERIES COMMUNITY ADVISOR AND MEMBER OF THE SQUAMISH FIRST NATION

***Wild Works Best* by Jeffrey Young M.Sc. and Panos Grames**

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Cover photo: David Hall/seaphotos.com

"What we know is that hatchery and wild fish just aren't the same."

JEFFERY YOUNG, MARINE BIOLOGIST, DAVID SUZUKI FOUNDATION, FROM THE FILM WILD WORKS BEST

Pacific salmon are in trouble. Unfortunately, salmon hatcheries are an expensive fix that can make the problem worse.

A growing body of scientific evidence demonstrates how hatchery fish can harm wild salmon populations. Whether through direct competition for food and habitat or interbreeding with wild fish and altering their genetic structure, science shows hatchery fish can reduce wild salmon abundance and survival.

Hatchery operations have many direct impacts on wild salmon. Science shows hatchery fish increase the risks of disease and parasites in wild salmon. The hatchery facilities themselves can degrade wild salmon habitat through blocked passages or water withdrawals. As important as these direct impacts are, the genetic and competition issues are of greatest concern.

Hatchery supplementation is often presented as an alternative to addressing direct impacts to wild salmon, such as fishing pressure or habitat loss from major industrial projects.

> "We are overcrowding the North Pacific with hatchery fish."
>
> *GREG KNOX, EXECUTIVE DIRECTOR SKEENAWILD CONSERVATION TRUST*

Current and historic overfishing has had a major impact on wild salmon. Many hatcheries were built in an attempt to support unsustainable levels of fishing.

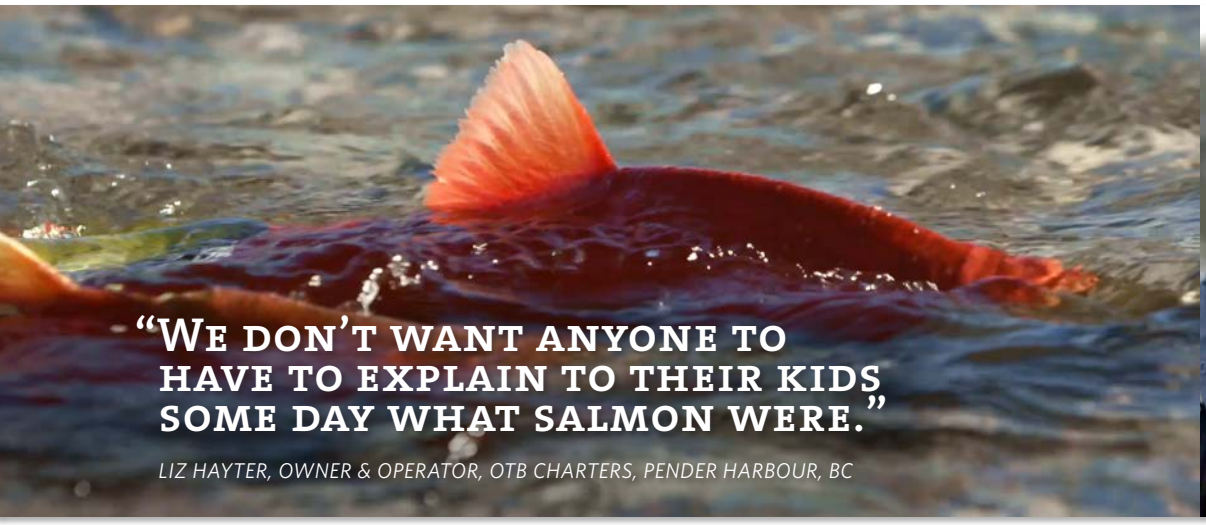
Hatcheries are commonly used to justify unsustainable fishing and to mitigate the loss of critical salmon habitat, such as the proposed Vancouver region port expansion at Roberts Bank. However, hatcheries are not a good solution for habitat loss or fishing pressures.

Hatcheries are often important hubs for people who care about salmon. They have also become education centres where children and youth can learn about the salmon life cycle. Re-establishing funding for local communities to monitor and collect scientific information, including walking streams to count fish and monitor habitat quality, could serve a similar purpose of education, community engagement and even employment that would greatly benefit wild salmon.

Background

Few things raise passions more than wild Pacific salmon. Instrumental to Indigenous culture, salmon literally connect the ecosystems of the Pacific Ocean to British Columbia's Interior, bringing energy and nutrients from the ocean to spawning grounds hundreds of kilometres inland.

Salmon feed humans, whales, bears and eagles and fertilize magnificent coastal and inland forests and valley bottoms. Pacific salmon populations face multiple threats, including habitat destruction and unsustainable fishing practices, and are particularly susceptible to climate destabilization.



"We don't want anyone to have to explain to their kids some day what salmon were."

LIZ HAYTER, OWNER & OPERATOR, OTB CHARTERS, PENDER HARBOUR, BC

The implications of salmon declines go beyond the fish. During their lifetime, salmon must run the gauntlet of more than 140 predators, including southern resident orcas. As Canada's most endangered marine mammal, the 73 remaining resident orcas require immediate help, including refuges, reduced acoustic noise, pollution abatement and protection for Chinook salmon, the whales' primary prey.

The interdependence between orcas and salmon illustrates the importance of healthy ocean ecosystems. If we don't recover declining Chinook salmon, one of our most iconic whale populations likely won't survive.

Hatchery salmon breeding with wild salmon reduce overall population fitness

Hatcheries can mess up the genetics of wild salmon populations, reducing survival of the next generation of fish. Artificial selection of parents, use of only a small number of parents and time spent in an artificial environment all shift the genetics of salmon. Hatchery salmon can spawn with salmon from their natal streams and salmon in neighbouring watersheds.

Hatchery salmon compete with wild salmon

Hatchery fish can compete with wild fish for food and other resources. In some cases, hatchery fish end up eating young wild fish. Hatcheries often time the release of juvenile salmon to take advantage of food resources, which in turn may make that food less available to wild fish.

Hatcheries often release large juveniles, which can eat other juvenile salmon or outcompete them for resources. Concerns have also been raised about the overall carrying capacity of the North Pacific Ocean. More than five-billion hatchery salmon are released every year, with only so much ocean food to go around.

Resident killer whales, including the southern resident population, are dependent on wild salmon for food.

"Do you want to just stick your head in the sand and pretend that nothing is happening?"

DR. ELAINE LEUNG, MARINE BIOLOGIST & FOUNDER OF SEA SMART

Excuse not to take other actions?

Hatcheries are often used to avoid dealing with resource-extraction impacts like habitat loss and overfishing. Claims that a hatchery is being used for "conservation" purposes should be closely examined to determine whether they also address the core issues facing the particular salmon population, or if the hatchery is providing cover to continue harming wild fish (e.g., through fishing) before the potential benefits of enhancement are realized.

Instead, viable conservation projects should aim to recover and maintain naturally spawning wild salmon populations and the habitat elements that support them. For example, re-establishing natural stream flows and access to off-channel habitats in a forest can potentially increase salmon survival and fitness.

"It's part of the requirement or obligation as an Okanagan person to bring the salmon back."

HOWIE WRIGHT WAGA TS'IWAAL, OKANAGAN NATION ALLIANCE FISHERIES MANAGER

Money spent on hatcheries could be better spent on habitat protection, restoration and reforming fishing practices

Hatcheries cost money. Although Canada spends less than other Pacific nations, we put out more than $15 million every year to raise salmon artificially. Once started, this artificial supplementation must often continue to maintain production levels.

Given the stated goals of the federal and provincial governments to conserve and rebuild wild salmon populations, limited resources would better serve to protect and restore natural habitats and increase monitoring of wild populations, while shifting from activities that can harm wild salmon, such as non-selective fishing methods and habitat destruction.

Can some salmon hatcheries work?

Small, community-based hatchery operations that focus on maintaining a highly depleted wild population, use rigorous management practices and provide public engagement opportunities are a potential exception to these concerns.

"The wild salmon returning to spawn in their natural river systems have survived all the environmental challenges we throw at them. These resilient fish carry the genes critical to the future of wild salmon."

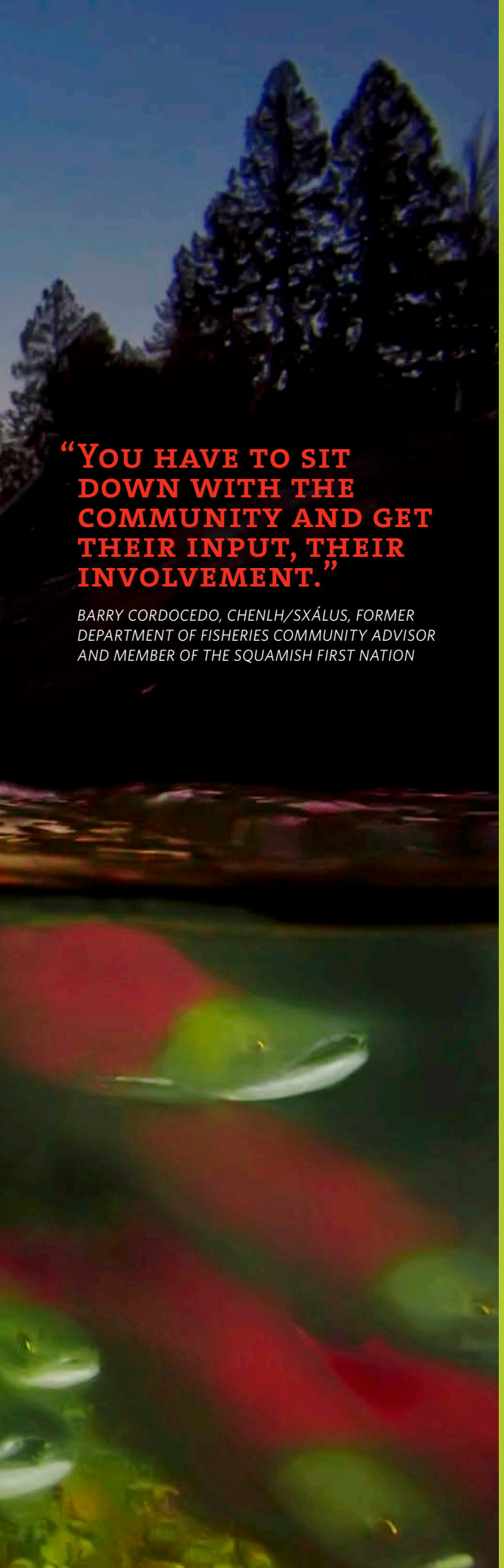
JEFFERY YOUNG, MARINE BIOLOGIST, DAVID SUZUKI FOUNDATION

Recommendations

1. Complete a full scientific review of all enhancement facilities. Require hatchery operations to meet criteria for protection and separation of wild and hatchery fish. For recovery-based enhancement, ensure there is a short, fixed time period to stop hatchery operations.
2. Implement the Canadian Wild Pacific Salmon Policy, which ensures conservation and recovery of the full biological diversity of all wild salmon.
3. Provide stimulus funding to restore critical community-based stream counts of spawning fish, habitat monitoring and targeted habitat restoration. Shift existing funding from hatcheries to community-led salmon recovery efforts.
4. Shift fisheries to more selective fishing methods, areas and times, moving from mixed stock ocean-based fishing to fishing closer to spawning grounds. This will help ensure that only abundant wild salmon are caught, and reduce the harm to those requiring protection and recovery.
5. Work with other countries on the Pacific Rim to reduce the output of hatchery salmon.

"Hatcheries have been used as this feel good panacea for salmon sustainability. There needs to be a more comprehensive approach."

SIMON HAYTER, OWNER & OPERATOR, OTB CHARTERS, PENDER HARBOUR, BC



"YOU HAVE TO SIT DOWN WITH THE COMMUNITY AND GET THEIR INPUT, THEIR INVOLVEMENT."

BARRY CORDOCEDO, CHENLH/SXÁLUS, FORMER DEPARTMENT OF FISHERIES COMMUNITY ADVISOR AND MEMBER OF THE SQUAMISH FIRST NATION

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