



THE PACIFIC SALMON FOUNDATION MAGAZINE

# SALMON STEWARD

WINTER 2024 | PSF.CA

## STATE OF SALMON

How are Pacific salmon in B.C. and the Yukon doing?

### CLIMATE ACTION

Project restores habitat damaged by extreme flood and drought

### RECREATIONAL FISHING STUDY

Research proposes 15 recommendations to improve catch and release



# SALMON STEWARD

WINTER 2024



PACIFIC SALMON FOUNDATION

## ABOUT US

We're salmon first, salmon always. Our vision is healthy, sustainable, and naturally diverse populations of Pacific salmon for the benefit of ecosystems and people for generations to come.

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Okanagan Nation Alliance toured Michael Meneer and PSF's leadership team around kł cəpəlk stini Hatchery in July.

Photo: Ava Farbarik

## CEO'S MESSAGE

### Pacific salmon have faced mounting challenges for decades, with many populations struggling.

Our first-ever State of Salmon Report provides the clearest picture yet of where salmon are declining, recovering, and in need of our help.

This breakthrough report summarizes the state of salmon across B.C. and the Yukon, enabling us to take action where salmon need it most (see page six).

This report also spotlights examples where salmon conservation efforts are paying off, encouraging PSF's work in the coming years to advance salmon recovery and resilience.

While this high-level information is essential, monitoring in-season salmon conditions is equally important.

The Chilcotin landslide this summer initially blocked the river and raised concerns about fish passage viability — reminiscent of the Big Bar Landslide in 2019. Migrations in the Chilcotin were delayed, but the river formed a new channel and more than 70,000 salmon had passed through by mid October, reminding us of the resilience and adaptability of Pacific salmon.

PSF recognizes the T̓silhqot̓in National Government for their salmon-focused efforts following the landslide.

We've also been tracking sockeye runs.

Unfortunately, the Fraser sockeye run this year was the second-lowest run size on record, likely exacerbated by poor conditions like warm waters. These fish originally came from eggs laid by salmon that returned in 2020. That year, many returning salmon struggled

because their spawning grounds were still partly blocked by the Big Bar slide, producing fewer fish for the next generation, which we are now seeing.

Conversely, the transboundary Columbia River saw record-high sockeye numbers this year. This run had dropped to fewer than 10,000 sockeye in the 1990s. This year, an estimated 750,000 sockeye returned to the lower Columbia. This recovery is due to long-term efforts led by Okanagan Nation Alliance, supported by U.S. utilities, PSF, and others.

While the Fraser sockeye return is concerning, the rebound of Okanagan sockeye illustrates that rebuilding is possible. PSF is hopeful that we can learn from the Okanagan and catalyze success elsewhere.

These updates must fuel our collective motivation to do everything we can to protect and rebuild salmon for generations to come.

This is also why PSF's strategic plan acknowledges the need to transform salmon management systems. Crown governments can't save salmon alone and we know that historic approaches to managing salmon are insufficient to today's challenges. Instead, we need a new model where First Nations and communities set and implement salmon recovery priorities, backed by all levels of government, non-profits like PSF, and donors. In December, we will discuss these priorities at the Salmon Recovery and Resilience Conference (see page 15).

Salmon face many daunting challenges, but recovery and resilience are possible with collective, decisive action.

Michael Meneer  
President & CEO,  
Pacific Salmon Foundation



**ON THE COVER:**  
Sockeye salmon.

Photo (top): Fernando Lessa

## COMMUNITY CORNER



Photo: Tavish Campbell

### OPEN-NET PEN UPDATE

In June, the Government of Canada announced a ban on open-net pen aquaculture in British Columbia by 2029. PSF is supportive of this decision given the collection of peer-reviewed research from the past decade that clearly links open-net pen salmon farms in B.C. to risks for wild Pacific salmon.

The federal government has also released a draft transition plan for open-net pen salmon aquaculture. PSF will actively engage in the consultation process.



### 'BRINGING THE SALMON HOME' COMES TO VANCOUVER

On Oct. 4, PSF hosted a screening of 'Bringing the Salmon Home' — a documentary about the Columbia River Salmon Reintroduction Initiative, an Indigenous-led collaboration to restore salmon to the upper Columbia River after nearly a century of blockage by dams. Representatives from the Syilx Okanagan Nation, Ktunaxa Nation, and Secwépemc Nation spoke on a panel following the screening.

### NEW MARINE DATA PORTAL

Check out PSF's new Marine Data Centre! This centralized repository for marine data in the Salish Sea and west coast of Vancouver Island supports the research and conservation of Pacific salmon in B.C.

[marinedata.psf.ca](http://marinedata.psf.ca)



### HOPS FOR HABITAT

PSF's sold out 'Hops for Habitat' fundraiser in August celebrated the tremendous impact that the Port Alberni community has had on restoring Pacific salmon and local habitat, with thanks to our generous sponsors — Port Boat House, Gone Fishin', and Twin City Brewing.

### SAVE THE DATES!

PSF's **South Vancouver Island Gala Dinner & Auction** will take place on Saturday, March 8, 2025, at the Fairmont Empress.

On Thursday, May 1, 2025, join us at our **Vancouver Gala Dinner & Auction** at the Vancouver Convention Centre — presented by Wheaton Precious Metals.

[psf.ca/EVENTS](http://psf.ca/EVENTS)

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Join us in Vancouver on Dec. 3 and 4, 2024.





Restoration work in action at the Deadman River.

Photo: DFO

“Years ago, there were cottonwoods all the way down the riverbank. Now, it’s a barren land. This project is going to show us how to help nature come back and take care of itself.”

— Don Ignace

in this hot, dry watershed. This involves widening and lowering the riverbanks, adding large woody debris in the floodplain, and constructing riffles to elevate the water table.

“The riffles we’ve installed are going to create fish habitat, hold some water back, and help engage the floodplain. This is the first step toward bringing back riparian coverage,” says Don Ignace, the general manager of Skeetchestn Natural Resources Corporation.

## WHERE COTTONWOODS GROW, SALMON FOLLOW

In B.C.’s southern Interior, black cottonwood trees are crucial to salmon habitat. An oasis in an otherwise arid landscape, cottonwood riparian forests support stream health by preventing erosion, improving water quality, and providing shade and shelter for dozens of species — including Pacific salmon.

The Deadman River, located in the traditional lands of the Skeetchestn Indian Band, near Kamloops Lake, is an area where cottonwoods have vanished due to industrial development and climate change. The Deadman is a key tributary to the Thompson River, providing valuable habitat for pink, coho, steelhead, and Chinook salmon.

However, decades of extensive logging and recent wildfires have drastically changed the Deadman’s water flow patterns. The area now experiences a 100-year flood event every 10 years.

“Since 1990, the Deadman has experienced repeated large floods. Without the historic forest cover and floodplains, there’s a lot of water moving downstream very quickly. The lower parts of the river are eroding fast,” says Brenley Yuan, a biologist with Fisheries and Oceans Canada (DFO).

Powerful currents have carved a deep riverbed and steep banks, hindering the Deadman’s ability to overflow into the floodplain. Without active floodplains to provide the necessary water and nutrients, cottonwoods struggle to survive. Bringing these trees back to the riverbank could be pivotal to break this cycle and support local salmon populations.

“Salmon habitat isn’t just instream. The riparian coverage is important for them as well, especially in the Interior, when

flows get so low, and the water gets so hot during the summer. Having healthy cottonwoods and floodplain connectivity is beneficial for the salmon and for the greater ecosystem,” adds Yuan.

With support from PSF’s Community Salmon Program, Skeetchestn Indian Band collaborated with DFO, UBC, and the Okanagan Nation Alliance to carry out a two-part restoration project in the Lower Deadman.

The first part of the project pairs experimental planting of cottonwood cuttings with solar-powered irrigation to determine which low-maintenance, low-budget strategies can help maximize seedling survival.

The second part focuses on re-engaging an abandoned floodplain by restoring natural flooding patterns

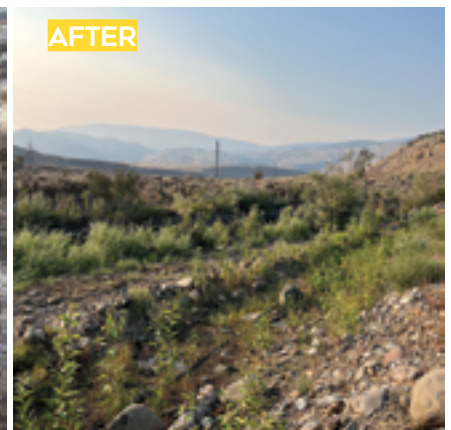
### WHAT ARE RIFFLES?

Riffles — important salmon habitat — are shallow, fast-moving sections of a stream where water is seen splashing through rocks, allowing oxygen to mix into the water.

“Years ago, there were cottonwoods all the way down the riverbank. Now, it’s a barren land. This project is going to show us how to help nature come back and take care of itself.”

Ignace reminisces on destructive floods and wildfires during the last 35 years that devastated the watershed. In this context, Skeetchestn aims to restore the river channel and floodplain to enhance long-term cottonwood growth and improve habitat for salmon.

“Being the main stewards of the land and the watershed, everyone comes to collaborate through Skeetchestn. We’re working together, learning from partners, and building long-term capacity so we can bring local knowledge to future projects,” says Ignace. 🐟



Photos: DFO



# SURVIVAL AT SEA

The future of Chinook salmon from the west coast of Vancouver Island (WCVI) hangs in the balance.

They are currently threatened and at risk of becoming endangered, according to the Committee on the Status of Endangered Wildlife in Canada.

The exact reasons for their at-risk status remain unclear, but it's widely agreed that poor Chinook survival during their first year in the ocean contributes to declines.

PSF and Ha'oom Fisheries Society have partnered on a multi-year project, working with DFO and multiple First Nations to help bridge this knowledge gap.

Rebuilding Chinook salmon is a key priority for Ha'oom Fisheries Society, which works for five Nuu-chah-nulth Nations: Ahousaht, Ehattesaht, Mowachaht/Muchalaht, Hesquiaht, and Tla-o-qui-aht First Nations.

“The principles of *hishuk ish tsa'walk* (everything is connected) and *isaak* (respect) are critical to all Nuu-chah-nulth Nations. Researching and conserving *suu'haa* (Chinook salmon) aligns directly with their cultural responsibilities and long-standing practices of sustainable resource management,” says Keaton McCallum, a biologist with Ha'oom Fisheries Society.

The project has two key approaches:

1. Tagging juvenile Chinook salmon to determine where and when they are dying
2. Combining survival data with information on pathogens and environmental stress, gathered from DNA/RNA ‘Fit-Chips’ — a technology similar to what's used in personalized human medicine

“By uncovering the challenges young Chinook salmon face and the ultimate fate of those same fish, we'll gather more direct evidence than ever before about what's impacting survival,” says Dr. Andrew Bateman, the lead of PSF's Salmon Health Program.

“These findings will help guide restoration and protection efforts to rebuild these at-risk Chinook salmon.”



A section of the PIT-detection system that team members connected to others and submerged in the Somass River.

Photo: Sam James

## HOW TO TRACK A CHINOOK

It all begins with tiny Passive Integrated Transponder (PIT) tags — identification devices about the size of a grain of rice. As of September 2024, more than 20,000 WCVI Chinook have been tagged in hatcheries and the ocean.

Each PIT tag emits a unique identification code when it encounters a detection system, telling researchers if and when individual fish have survived life at sea and returned as adults.

Researchers will pair survival estimates from PIT tags with genomic data from Fit-Chips — technology developed by Dr. Kristi Miller at DFO with support from PSF — which recognize specific stress signals and pathogens in salmon, determined from a non-lethal gill biopsy.

Through this novel combination of methods, the research team will relate stress and infection to the survival of individual WCVI Chinook salmon for the first time.

For Ha'oom Fisheries Society, this project ultimately reinforces the five Nations' values, including food sovereignty.



In August, the research team installed North America's longest in-river PIT-tag detection system in the Somass River near Port Alberni, spanning almost 110 metres across the river's width. Photo: Braela Kwan

The research team is mostly tagging hatchery-raised fish since there are so few wild Chinook remaining. Because both wild and hatchery fish share the same habitats and face similar challenges, researchers will use collected data to better understand wild Chinook.

“By participating in these research efforts, the Nations maintain control over their food systems, aligning with their rights to manage their lands and resources as they have since time immemorial,” says McCallum.

*This project is supported by the British Columbia Salmon Restoration and Innovation Fund — a joint program from the Government of Canada and Province of British Columbia (BCSRIF).*





# STATE OF SALMON

**SIX SPECIES.  
NINE REGIONS.**

**ONE GO-TO RESOURCE  
ON THE STATE OF PACIFIC SALMON  
IN B.C. AND THE YUKON.**



## HOW ARE PACIFIC SALMON DOING?

**It's a complicated question we've been asked for years, without easy answers. With more than 10,000 salmon populations across B.C. and the Yukon, it can be a difficult question to answer.**

Yet understanding the state of salmon is key to knowing where action is needed and how to best focus efforts to help them recover.

We have heard complex and often contradictory messages that range from stories of record-high salmon runs to unprecedented fishing closures.

That's why PSF set out to cut through the noise and find answers grounded in data.

PSF's new State of Salmon Report — the first of its kind to assess the state of each species of Pacific salmon and steelhead in all major salmon-bearing watersheds in British Columbia and the Yukon — shows widespread declines in salmon coupled with some encouraging signs of recovery for some species in some regions.

"The State of Salmon Report gives us the clearest picture yet of how Pacific salmon are faring across Canada — and it's evident they need our help," says Michael Meneer, President and CEO, PSF.

"This much-needed report tells us where salmon are declining, recovering, and where they need our support. With access to these data-driven insights at our fingertips, we can take decisive action to protect and rebuild salmon for generations to come."

The results indicate that more than 70 per cent of salmon are below their long-term average of the 41 combinations of regions and species assessed. Further, of all species, chum salmon and steelhead are struggling the most.

The report also shows signs of hope. Coho salmon from the Fraser River and Chinook from Vancouver Island and Mainland Inlets are above their long-term average.

**"The State of Salmon Report gives us the clearest picture yet of how Pacific salmon are faring across Canada — and it's evident they need our help. This much-needed report tells us where salmon are declining, recovering, and where they need our support. With access to these data-driven insights at our fingertips, we can take decisive action to protect and rebuild salmon for generations to come."**

— says Michael Meneer, President and CEO, PSF

### KEY FINDING

Declines in Pacific salmon are widespread across British Columbia and the Yukon. More than 70 per cent of salmon are below their long-term average abundance.







Photos: (top) Chase White, (left) Eiko Jones, (right) Fernando Lessa

**WHAT WE FOUND**

The State of Salmon report indicates that chum salmon have experienced the steepest declines of any species. They are below the long-term average in every region assessed. Chum salmon range from 39 per cent below the long-term average in the Nass River region to 89 per cent below in the Skeena region. These declines mirror chum trends across the North Pacific, including Oregon, Washington, and Japan.

Similarly, steelhead are also below their long-term average in all regions. In some areas, such as the Columbia, only a few fish have been recorded in recent years.

The results also indicate that northern areas — including the Yukon, Central Coast, Haida Gwaii, and Northern Transboundary watersheds — have experienced widespread salmon declines.

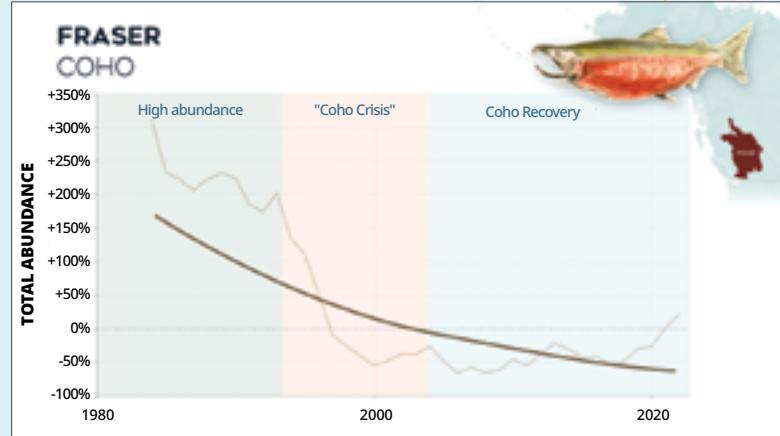
“Salmon are expected to shift north as the climate changes,” says Katrina Connors, Senior Director, PSF.

“There’s a perception that northern areas will provide refuge for salmon as climate change pushes salmon to their limits in their southern range. However, the poor state of salmon and the rapid pace of climate change in these northern regions suggest that these salmon actually need more of our help.”

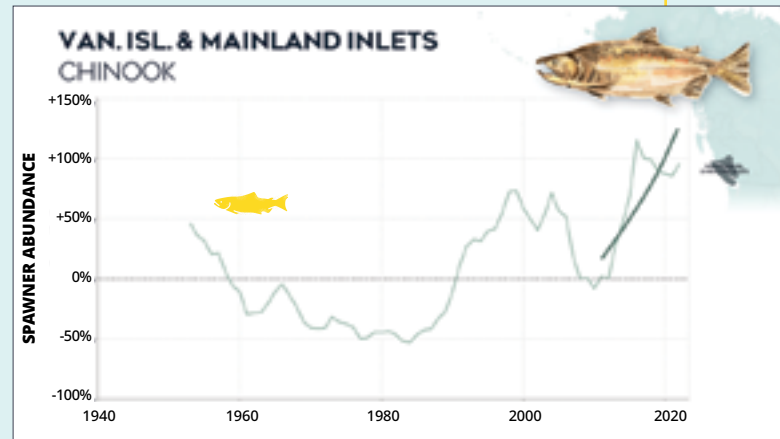
**SILVER LININGS**

The State of Salmon report also provides signs of hope for the future of Pacific salmon. Some species in southern regions are doing well.

For example, Fraser River coho are above average for the first time in decades with levels of fish returning to spawn not seen since before the crash in the 1990s.



Similarly, Chinook on Vancouver Island and Mainland Inlets are well above average. While there is variability among populations within the region, Chinook in this region are doing exceptionally well overall.



**THE PATH FORWARD**

“Overall, the state of salmon in B.C. and the Yukon should raise our collective alarm. Most species in most regions are declining. However, there is hope. Some species are recovering and showing remarkable resilience in the face of increasing threats like climate change,” says Connors.

“We look forward to working with Indigenous partners, communities, and crown governments to activate insights from the State of Salmon Report and identify solutions that will improve the state of salmon and accelerate their recovery. We must protect and maintain the diversity of salmon and their habitats to give them the best chance to adapt and thrive in an ever-changing world.”



# SPECIES AT A GLANCE



## CHINOOK SALMON

Chinook salmon are below their long-term average in northern regions, yet have increased above average in the Fraser region and Vancouver Island and Mainland Inlets. Fraser Chinook saw a remarkable return in 2023, lifting their numbers above average. However, for the past 15 years, they've hovered at or below average. It remains to be determined whether this recent surge is an anomaly or the beginning of a promising trend.



## COHO SALMON

Coho salmon are below the long-term average in many regions, except in the Nass and Fraser regions where they are 38 per cent and 78 per cent above average, respectively. Fraser coho are showing promising signs of recovery.



## CHUM SALMON

Chum salmon have experienced the steepest declines of any species of any species. They are below their long-term average in every region assessed. Their largest declines are observed in northern regions, such as the Skeena region where they are 89 per cent below average.



## PINK SALMON

Pink salmon are doing better than most species. They are above their long-term average in four out of seven regions assessed — the Nass, Skeena, Fraser, and Vancouver Island and Mainland Inlets. Pink salmon are more abundant in the Fraser than any other region.



## SOCKEYE SALMON

Sockeye salmon are above their long-term average in half of all regions assessed, including the Columbia, Northern Transboundary, Skeena, and Nass regions.



## STEELHEAD

Steelhead are below their long-term average in all regions assessed. Many populations face an imminent risk of extinction, including in the Fraser where two populations are listed as endangered by the Committee on the Status of Endangered Wildlife in Canada.

Illustrations: Joseph Tomelleri



*PSF thanks the Province of B.C. for funding that made the State of Salmon Report possible. The report is based on detailed data from the Pacific Salmon Explorer.*

The State of Salmon Report is an open-access resource that summarizes the state of salmon at a high level. For more specific, fine-tuned information about the status of specific salmon populations and their habitats, visit PSF's companion tool: the Pacific Salmon Explorer.

[SALMONEXPLORER.CA](https://salmonexplorer.ca)

Photo: Fernando Lessa



**NORTHERN TRANSBOUNDARY**

*4 of 6 species are below their long-term average*

The Northern Transboundary region comprises six watersheds that originate in Canada and flow into the Pacific Ocean in southeast Alaska. Most species in this region are below average but recent sockeye increases are encouraging.

Chinook, chum, and pink salmon are all well-below average and are a significant conservation concern.

**YUKON**

*2 of 3 species are below their long-term average*

Yukon chum and Chinook salmon have experienced precipitous declines in recent years.

Chum returns have recently plummeted to historic lows, causing fishing closures in 2022 and 2023.

Chinook have steadily declined since the 1980s. Recently, the Canadian government and the state of Alaska placed a moratorium on all fishing of Chinook in the Yukon River for at least seven years.

**VANCOUVER ISLAND & MAINLAND INLETS**

*4 of 6 species are below their long-term average*

The Vancouver Island and Mainland Inlets region stretches from Burrard Inlet and Howe Sound to Smith Inlet and the northern Broughton Archipelago.

Chinook salmon from this region are 96 per cent above average, and many populations are showing impressive numbers, such as in the Cowichan River where record numbers are returning after near extinction in 2009. However, this positive outlook is not reflected in all rivers within the region. For example, many Chinook populations on the west coast of Vancouver Island are declining.

Pink salmon are 94 per cent above average, mirroring broader changes in the North Pacific, where pink salmon are the most abundant salmon species.

**NASS**

*3 of 6 species are below their long-term average*

The Nass is British Columbia's third-largest watershed. In this region, chum are the furthest below average, while coho and pink salmon are well-above average.

Nass salmon currently have one of the most positive outlooks of all regions. However, Chinook, chum, and steelhead are all below the long-term average.

Chum salmon are a significant conservation concern in the region and are 39 per cent below their long-term average.

**HAIDA GWAII**

*4 of 6 species are below their long-term average*

Haida Gwaii is an isolated archipelago of more than 200 islands. All species with reliable data in the region are below average with chum, coho, and pink salmon showing the most dramatic declines.

Unlike other regions where pink salmon have been doing relatively well, pink salmon are 77 per cent below their long-term average in Haida Gwaii.

TB



**BY THE REGIONS**

Illustration: Aimée van Drimmelen





**SKEENA**

*4 of 6 species are below their long-term average*

The Skeena River is the province's second-largest salmon-bearing watershed, including important tributaries such as the Babine, Kispiox, and Bulkley Rivers. In this region, pink and sockeye are above average, while chum have declined dramatically.

Skeena chum salmon, 89 per cent below their long-term average, are a significant conservation concern. They are the furthest below the long-term average of all species and regions.

Skeena sockeye abundance is heavily influenced by artificial spawning channel enhancement in two tributaries to Babine Lake. More than 90 per cent of Skeena sockeye returns come from this enhanced Babine population, ultimately eroding sockeye biodiversity in the region.

**FRASER**

*3 of 6 species are below their long-term average*

The Fraser River Basin is the largest salmon-bearing watershed in British Columbia. Fraser Chinook, pink, and coho are above average, while other species are declining.

Coho salmon are showing promising signs of recovery. Coho are at levels not seen since before the crash of the 1990s, suggesting that reductions in harvest implemented as part of recovery planning for Interior Fraser coho may be paying off.

Fraser sockeye have seen concerning declines in the past decade, highlighting persistent conservation concerns despite major reductions in fisheries.



**CENTRAL COAST**

*5 of 6 species are below their long-term average*

The Central Coast region is part of the Great Bear Rainforest. All species with sufficient data in this region are below average, with dramatic declines for Chinook and chum salmon.

In 2022, Chinook reached all-time low numbers and chum saw one of the lowest years on record.

**COLUMBIA**

Salmon were virtually eliminated from the Canadian portion of the Columbia River basin after extensive development occurred, including 12 major dams. Community-driven reintroduction efforts have led to impressive recovery for sockeye. In fact, sockeye from the Columbia are doing the best of all regions. They are 70 per cent above their long-term average.

PSF could not assess the current states of Chinook and steelhead due to insufficient data, but there are conservation concerns.





An aerial view of Big Silver River where flows were restored.

Photo: Richard Lam

## RIVER FLOWS RESTORED JUST IN TIME FOR RETURNING SOCKEYE

PSF funds \$16,000 to restore flows at Big Silver River, an important sockeye spawning site.

**“My grandfather would say to me, son, as soon as you see the water changing to a milky colour, you know the salmon are in there.”**

Kelsey Charlie and his family have used this age-old indicator for generations as a sign that salmon are on their way home.

The elected official of Sts'ailes First Nation knows the glacial-fed waters of Harrison Lake and their salmon intimately. In his youth, he spent hours on his grandfather's boat observing areas where salmon congregate in the Harrison River, just before they make their way toward their spawning grounds.

“If we caught a fish, I'd be able to tell just by its scales where it was going,” says Charlie, whose traditional name is *Tixweltel*. “I guess over time you just know by the look or by the feel, ‘this fish is going there’.”

### CLIMATE EXTREMES

The Harrison River is one of the Fraser River's most important salmon-bearing tributaries and is home to all species of salmon. Harrison River sockeye continue their migration journey into Harrison Lake, spawning in rivers and streams further up the lake.

One of those rivers is Big Silver River, located about 40 kilometres north of Harrison Hot Springs. The river has two arms connected to the east side of the lake which join up about two kilometres upstream.

During the extreme flooding event in November 2021 that severely impacted the Fraser Valley, the right arm of Big Silver River was blocked by debris and disconnected from Harrison Lake when water levels dropped in the summer months.

The blocked arm became a major concern, particularly for a local sockeye population that has ‘poor’ status, as assessed by the Pacific Salmon Explorer ([salmonexplorer.ca](http://salmonexplorer.ca)).



“Engineers, biologists and technicians from DFO conducted assessments of habitat quality indicators. We determined that gravel deposition at the upstream end of the right arm was an urgent threat to returning adult salmon,” says Justin Barbati, a DFO biologist.

In an attempt to mitigate impacts on the river’s salmon run, DFO crews undertook work to reopen the blocked river arm last year.

However, the operation was hampered by severe drought conditions. They could not fully restore fish passage, and the river still ran dry through the right arm in late summer 2023.

### SECOND TIME LUCKY

In 2024, PSF and DFO collectively provided \$41,000 to see this critical habitat rehabilitation work through.

In late July, DFO crews used an excavator to forge a 12-metre-wide channel just upstream of the fork in the river, reaching past the obstruction in the right arm. The work successfully reconnected the right arm to the mainstem, just in time for the returning sockeye salmon run.

“500 cubic metres of gravel was removed from the right arm,” says Barbati. “This successfully increased flow into the spawning grounds and ameliorated fish passage concerns.”

The restored channel is expected to provide approximately 45,000 square metres of spawning habitat for sockeye, chum, pink, and coho salmon.

In addition, the area should see an estimated half a million sockeye and chum fry, 225,000 pink fry, 125,000 Chinook fry and 1,125 coho smolts using the restored habitat per year.

For Charlie, the project demonstrates both the resilience of salmon but also the importance of protecting them in the face of climate change.

“The salmon somehow find a way, even without our help. But we still have to do our part to help them — that’s always been our perspective.”



Team members from DFO, Sts’ailes First Nation, and PSF at the Big Silver restoration site.



PSF’s Marissa Waddell.

Photos: Richard Lam

**“The salmon somehow find a way, even without our help. But we still have to do our part to help them — that’s always been our perspective.”**

— Kelsey Charlie

The Sts’ailes councillor knows the damage suffered at the mouth of Big Silver may cause lower salmon returns for the next few years, but he’s hopeful about the bigger picture.

“They [the salmon] keep striving,” says Charlie. “We know that some have made it to Big Silver this year, and if they made it, that means they are going to come back.”

*The Big Silver project was the first of 14 projects funded by PSF’s climate emergency fund in summer 2024. The fund was set up so PSF can respond rapidly to climate emergencies impacting salmon throughout the province. As of late September, PSF has approved \$340,000 in 2024 towards projects affected by climate change issues like drought and wildfire. These projects were identified by a broader ‘Supporting Emergency Actions for Salmon’ working group with the First Nations Fisheries Council of B.C., DFO, the Province of B.C., and PSF.* 🐟



### READERSHIP SURVEY

Share your feedback on Salmon Steward for your chance to win a PSF-branded YETI mug. A winner will be randomly selected on Dec. 9, 2024.

Conduct a short survey by visiting [psf.ca/READ](https://psf.ca/READ)



# RETHINKING CATCH AND RELEASE

UBC research, co-funded by PSF, proposes 15 recommendations to improve catch and release methods.

If you've ever been recreational fishing, the odds are you are familiar with **catch and release**.

Catch and release — a conservation measure that requires a captured fish to be returned to the water — is a fisheries management practice intended to protect vulnerable fish stocks and abide by certain fisheries regulations.

In the past few decades, the practice has become increasingly common as certain salmon stocks have declined and restrictions have tightened the size and number of fish that anglers can keep.

Catch and release allows fishing opportunities to continue when there are limits on fish retention.

But the downside — which is under increased scrutiny — is that some released fish die, and scientists don't have all the answers to what is causing mortality.

To evaluate effects of catch and release on Pacific salmon, UBC's Dr. Scott Hinch led a five-year research project aiming to improve future practices and policies.

"We have to make sure we understand what the consequences are of catch and release so we can improve the practice," says Dr. Hinch.

A team of graduate students caught and tracked more than 1,500 Chinook and coho salmon in areas frequented by recreational fishers, such as the east coast of Vancouver Island, Barkley Sound, and Juan de Fuca Strait.

Results revealed several factors affect post-release mortality rates, some of which were unexpected. These included the amount of time fish spent on the hook, exposure to air, injury level, stock, species, age, and weight.

Injuries sustained during fishing particularly impacted released salmon. Fish with injuries to fins, scales, and eyes had up to 20 per cent poorer survival in the 10 days after release compared to fish that were in good physical condition. Eye injuries showed a further 20 per cent reduction in survival after 40 days.

"What really surprised me was just how delicate marine salmon are," says Hinch. "We all know that scales come off these fish when you handle them, but we found the level of scale loss and fin damage caused by landing nets and handling were directly related to their subsequent survival."



The UBC research crew sampling and releasing Chinook.



Releasing a tagged Chinook salmon.

Photos: Steve Johnstone

Smaller fish were more easily injured by typical fishing approaches leading to much poorer survival after release. Regulations often require the release of smaller fish which means anglers need to avoid fishing in areas where these fish may be encountered, as release may lead to higher rates of mortality, explains Hinch.

Other findings suggest that coho are less resilient than Chinook to catch and release practices — although more research is needed to determine why.

Hinch and his team have submitted 15 recommendations to DFO and hope their work can make catch and release more fish-friendly. Among them, they suggest using smaller hook sizes and avoiding gear like treble hooks, tandem hook point set ups, and flashers.

Hinch noted that "anglers should avoid landing nets and keep fish submerged as much as possible during release."

"There are ways to release fish that will create good survival outcomes," says Hinch. 🐟

TO READ THE 15 RECOMMENDATIONS,  
VISIT [PSF.CA/CATCH-RELEASE](https://psf.ca/catch-release)



# INAUGURAL B.C. SALMON RECOVERY AND RESILIENCE CONFERENCE



Photo: Fernando Lessa

The first-ever B.C. Salmon Recovery and Resilience Conference is taking place on Dec. 3 and 4, 2024. With four overarching themes — **State of Salmon, Salmon Recovery, Salmon Resilience, and System Transformation** — the conference will feature inspiring keynote presentations and breakout panel sessions with participation from 500 experts and members of the salmon community.

With half of wild salmon populations in decline and a growing network of salmon experts working to find solutions, now is the time to gather, share, learn, and connect to advance shared priorities for resilient salmon populations for generations to come. Salmon recovery is possible where there's coordinated planning, backed by science, data, and a community of experts working together with a co-managed system to support them.

Join us at the Vancouver Convention Centre on Dec. 3 and 4, 2024 to participate in the B.C. Salmon Recovery and Resilience Conference.

## DETAILS:

### OPENING KEYNOTE SPEAKERS:



**DR. ANN WILLIS**

California Regional Director at American Rivers



**DR. JONATHAN MOORE**

Professor in Aquatic Ecology and Conservation at Simon Fraser University and Liber Ero Chair of Coastal Science and Management



**MURRAY NED**

Executive Director at Lower Fraser Fisheries Alliance

### BREAKOUT SESSION TOPICS

- Collaborative salmon recovery: success stories
  - Understanding First Nations socio-cultural values
  - Paths out of a world of cumulative effects
  - Climate emergencies and impacts in B.C.: fires, floods, and droughts
  - Forward-thinking perspectives on salmon hatcheries
- ...And many more!



Photo: Eiko Jones

## FIRST NATIONS SALMON FORUM

The First Nations Fisheries Council (FNFC) of British Columbia is partnering with PSF to host a First Nations Salmon Forum on Dec. 2, 2024. This gathering will lead into the general conference and will be for First Nations representatives and organizations only, focusing on the connections between salmon recovery and Indigenous reconciliation.

FNFC will also provide travel subsidies for Indigenous participants.

Please contact [conference@psf.ca](mailto:conference@psf.ca) to learn how to register for the First Nations Salmon Forum and B.C. Salmon Recovery and Resilience Conference or to inquire about travel subsidies.



Registration details and more information are available at [psf.ca/CONFERENCE](https://psf.ca/CONFERENCE)

The B.C. Salmon Recovery and Resilience Conference is presented by the Pacific Salmon Foundation, Province of British Columbia, and First Nations Fisheries Council of B.C.

Sponsored by: Biomark, CN Rail, LGL, and the Nature Trust of British Columbia





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FOUNDATION

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WE’VE SEEN IT IN PLACES LIKE  
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– MICHAEL MENEER,  
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