THE PACIFIC SALMON FOUNDATION MAGAZINE

SALMON STEWARD

SPRING 2026 | PSF.CA

THE SECRET LIVES OF SALMON

RESEARCHERS REVEAL WHERE SALMON GO, AND WHAT THEY EAT, AT SEA

OPEN-NET PEN BAN LOOMS

More than a decade of scientific evidence links Atlantic salmon farms to risks facing wild Pacific salmon

EVERYONE EVERYWHERE

A new state-of-the-art, fully-accessible boat brings inclusivity to the water

SALMON STEWARD

SPRING 2026

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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PSF and the Hon. Randene Neill, Minister of Water, Land and Resource Stewardship, visit Sargeant Bay Provincial Park on the Sunshine Coast, where a PSF grant helped upgrade the Sargeant Bay Society's salmon monitoring infrastructure.

CEO'S MESSAGE

In March 2026, several major government funding programs that supported PSF for more than five years came to an end.

Since 2019, PSF has received tens of millions of dollars in grant funding from federal and provincial governments — an effective investment into B.C.'s environment, economy, and communities. With these investments, we've made great strides in science, conservation, and innovation to help salmon amid evolving challenges like climate change.

Today, the future of government investment in Pacific salmon is uncertain. Shifting federal priorities, combined with ongoing fiscal pressures, mean sustained public funding for salmon is not guaranteed.

Over PSF's 35-plus years of experience, we have navigated these cycles before. We understand what it takes to keep the needle moving for Pacific salmon during these periods of flux.

PSF will continue to advance science and research, award grants to community groups and First Nations, and improve salmon recovery and resilience, all while focusing on what matters most: saving and restoring wild Pacific salmon.

That work is only possible because of you.

The passion and dedication of our philanthropic community have always been the backbone of PSF, enabling us to lead in salmon recovery, resilience, and habitat restoration.

For example, during the last decade, PSF has published key data assessments on salmon and their habitats to inform conservation planning and decision-making — filling gaps that haven't been addressed before and strengthening the resilience of the iconic species (see page 5).

We've also been actively conducting research in the field, helping answer burning questions about salmon — from uncovering the ocean stages that may challenge their survival (see pages 6 to 7) to assessing the risks open-net pen salmon farms pose to wild salmon (see pages 11 to 12).

At this critical moment for salmon when two-thirds of populations are in long-term decline, we cannot afford to slow progress.

Today, your support matters now more than ever to catalyze action. Your investment will be instrumental in the coming years to ensure we can continue conducting critical science, restoring watersheds, and implementing innovative solutions to address the growing challenges salmon face.

You've trusted us for decades to help make a difference for salmon. With your support, we can continue this vital work together, ensuring Pacific salmon not only persist, but thrive, for generations to come.

Michael Meneer
President & CEO,
Pacific Salmon Foundation

ON THE COVER:
Members of PSF's Bottlenecks to Survival research team.

Cover photo (top): Brandon Deepwell

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WORKSHOP CELEBRATES HERRING RESEARCH

PSF recently held a workshop on Vancouver Island to celebrate a multi-year research project on salmon and herring interactions.

This collaborative research effort with coastal First Nations is studying the role of herring in the salmon food web. Since 2023, the project has created tools to identify the Strait of Georgia's non-migratory herring population, tracked herring spawn habitat, and assessed if, where, and when juvenile salmon feed on herring.

A SPECIAL EVENING IN SUPPORT OF VANCOUVER ISLAND SALMON

PSF's South Vancouver Island Gala Dinner & Auction took place on February 28 at the Delta Victoria Ocean Pointe Resort. We raised more than $120,000 to accelerate salmon recovery, thanks to everyone who attended, bid, donated, and sponsored this fundraising effort. Your support is helping expand salmon research and habitat restoration on Vancouver Island.

PERCY WALKUS HATCHERY

Last fall, the Wuikinuxv First Nation led another successful egg take at the Percy Walkus Hatchery in Rivers Inlet on the Central Coast to rebuild Chinook, coho, and chum.

The annual Duncanby Lodge derby, supported by PSF, saw more than 20 anglers raise $400,000 in June 2025 for the hatchery. Additional donations throughout the year brought the total to $630,000.

Hon. Laanas - Tamara Davidson (Minister of Environment and Parks), Katrina Connors (PSF), and Hon. Niki Sharma (Attorney General and Deputy Premier).

'SALMON FOR GENERATIONS' RECEPTION

PSF and First Nations Fisheries Council co-hosted our annual 'Salmon for Generations' reception in Victoria, bringing together MLAs from all parties, provincial ministers, and Crown government staff.

The gathering was an opportunity to recognize the Province's investments in salmon recovery, strengthen partnerships across government and the salmon community, and highlight the urgent state of salmon in British Columbia.

SAVE THE DATES!

On **October 15 and 16, 2026**, PSF is hosting our second biennial **B.C. Salmon Recovery & Resilience Conference** at the Vancouver Convention Centre. Join more than 450 salmon leaders for two days of connection and knowledge exchange to advance collaborative action for salmon.

Register today:
PSF.CA/CONFERENCE

SALMON COME TO LIFE IN YUKON CLASSROOMS

Yukon River salmon undertake one of nature's most extraordinary journeys, travelling more than 3,000 kilometres through the Bering Sea and Alaska to reach their spawning grounds. But Chinook and chum populations have plummeted in recent years, forcing fisheries closures and creating ripple effects for local communities and ecosystems.

With so few fish returning, this generation of young people risks growing up without experiencing salmon first-hand.

Rivers to Ridges, a Yukon-based social enterprise, is working to reconnect local youth with salmon and their watersheds through outdoor education. With support from PSF, their educators are collaborating with Indigenous knowledge holders to co-develop three new salmon-focused educational resources.

"Our goal for these booklets is to help Yukon youth understand how salmon are crucial to our ecosystems, lifeways, and culture," says Han Shier, who leads the organization's Salmon in the Schools program. "Since we cannot be in every class every year, we hope to provide resources for educators who want to foster care and respect for salmon and the importance of safeguarding them for future generations."

Since 2015, Rivers to Ridges has visited almost every community in the Yukon. In the 2024–2025 school year alone, their team held workshops in 43 classrooms, engaging more than 600 students from kindergarten through high school.

"When we started, there was a real gap in salmon education resources and support for teachers. Our focus became finding ways to help them keep the passion alive for kids around salmon, especially given all the changes happening to these populations," says Emily Payne, co-founder of Rivers to Ridges.

Every workshop includes outdoor games, educational activities, and teachings from local knowledge holders.

"It's not one-size-fits-all; local context is a real pillar of the program," adds Payne. "We always ensure an Elder or knowledge holder is there — usually directly from the community we're visiting — to share stories, knowledge, and skills about salmon, and create that cultural and place-based link with youth."

While earlier materials were aimed at teachers, the new booklets are being designed for the students themselves to deepen their connection to salmon beyond the classroom.

"The program's effect on our school community has been profound. Conversations about salmon science and conservation have continued long after the workshops ended, reflecting [their] lasting influence," says Ian Dimopolous, a teacher and workshop recipient in Whitehorse.

Across a rapidly changing territory, Rivers to Ridges is helping ensure that even as salmon populations struggle, local youth understand what's at stake — and why restoring these fish matters.

PSF is proud to have supported Rivers to Ridges with $35k in funding since 2018. Every year, our Community Salmon Program amplifies the proceeds of the Salmon Conservation Stamp with generous donations to support more than 150 community-led salmon stewardship projects.

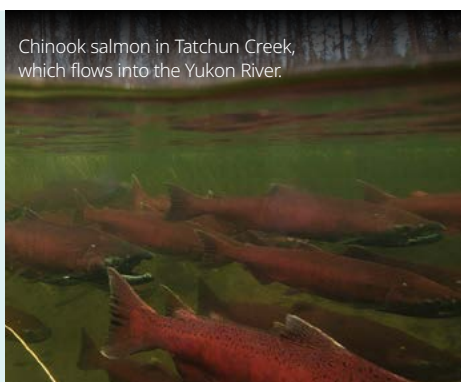
Support grassroots salmon conservation: *PSF.CA/DONATE*

YUKON SALMON IN CRISIS

The major salmon declines observed in recent years stem from a mix of factors. Climate change is transforming habitats, affecting food availability, and introducing new challenges for salmon across the Bering Sea and Yukon River watershed.

PSF has assessed the status of 20 unique population groups known as Conservation Units (CUs). The outcomes are stark: two-thirds of Chinook CUs (eight of 12) and every chum CU (five of seven) assessed are in the red 'poor' status zone, with some facing extinction. One coho CU could not be evaluated due to limited data.

Learn more: SALMONEXPLORER.CA



Chinook salmon in Tatchun Creek, which flows into the Yukon River.

Photo: Peter Mather

A DECADE OF TRACKING SALMON BIODIVERSITY

Biodiversity loss is being felt worldwide, with global wildlife populations declining by 73 per cent since 1970, as reported by the World Wildlife Fund.

For Pacific salmon, biodiversity is key to persistence. Salmon are uniquely adapted to their freshwater habitats, leading to incredible genetic diversity. When some populations struggle in the face of stressors like drought or disease, others can persist, buffering Pacific salmon as a collective against environmental pressures. That principle underpinned Canada's Wild Salmon Policy when it was introduced 20 years ago.

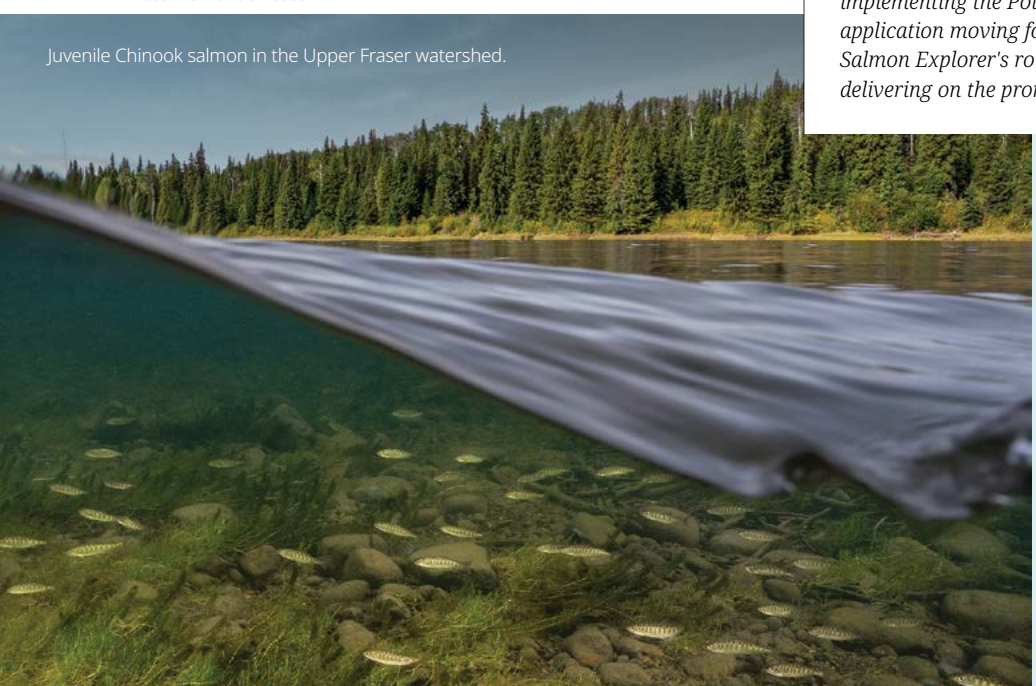
Yet federal progress in monitoring and assessing salmon populations — the backbone of preventing biodiversity loss — has lagged.

The Pacific Salmon Foundation (PSF) has been working to narrow that gap. Over the past 15 years, PSF has consolidated fragmented data into a publicly accessible tool, the **Pacific Salmon Explorer.**

Beginning with the Skeena watershed in 2016 and expanding most recently to the Yukon in 2025, the Explorer now spans all major Pacific salmon-bearing regions in Canada and is continually updated with the latest information.

While federally-led implementation of the Wild Salmon Policy has been limited, the Explorer harnesses the best available data to inform conservation planning and decision-making.

Photo: Fernando Lessa



Juvenile Chinook salmon in the Upper Fraser watershed.

WHAT IS THE WILD SALMON POLICY?

Canada's 2005 Wild Salmon Policy outlined a long-term commitment to "restore and maintain healthy and diverse salmon populations and their habitats." It was considered transformative at the time. Two decades later, many salmon populations have continued to decline, and efforts to fully assess them have lagged, highlighting how much work remains to deliver on the policy's vision.

"When it comes to Pacific salmon, we can't manage what we don't measure," says Dr. Katrina Connors, Senior Programs Director at PSF.

"The Pacific Salmon Explorer brings together critical information on salmon and their habitats and makes it freely available to everyone. By making this information transparent and accessible, we are strengthening our ability to understand, assess, and protect the extraordinary diversity that sustains salmon."

WHY SALMON BIODIVERSITY MATTERS

Across B.C. and the Yukon, there are more than 400 ecologically and genetically diverse groups of wild salmon — called Conservation Units (CUs) — each uniquely adapted to its freshwater environment.

Some have evolved smaller, slimmer bodies to avoid bears. Others have evolutionary history that may help them in the face of warming waters and climate change. Some adapted to return from the ocean when river conditions are favourable.

These unique adaptations strengthen the collective resilience of the entire species, enabling salmon to endure environmental pressures.

"Each Conservation Unit of salmon holds irreplaceable genetic diversity that together provides the ingredients for salmon adaptation to climate change and other stressors," says Dr. Steph Peacock, a scientist with PSF.

"Maintaining Conservation Units and their habitats is critical to steward salmon through the unprecedented conditions they are experiencing throughout their life cycles."

To mark the 20th anniversary of the Wild Salmon Policy, the Canadian Journal of Fisheries and Aquatic Sciences *published a special collection of articles that reflect on progress toward implementing the Policy and offer recommendations to strengthen its application moving forward. PSF's submission highlights the Pacific Salmon Explorer's role in democratizing salmon data — critical to delivering on the promise of the Wild Salmon Policy.*

THE BIG PICTURE

The Pacific Salmon Explorer evaluates all 427 salmon Conservation Units (CUs) in B.C. and the Yukon. Where enough data exist, the Explorer assigns each CU a biological status of **poor, fair, or good**. Among assessed CUs:

56% ARE POOR

28% ARE FAIR

16% ARE GOOD

Nearly two-thirds of Conservation Units were data deficient and could not be assessed.

Visit *SALMONEXPLORER.CA*

THE HIDDEN SECRETS OF CHINOOK SALMON'S LONG, HARD WINTER

Moody skies, a damp chill, and persistent drizzle meet Pacific Salmon Foundation (PSF) biologists Will Duguid and Katie Innes as they steer their small 20-foot boat, Primno, out of the Comox marina. It's a typical December day on Vancouver Island. But for the crew, the lack of wind this morning represents a window of opportunity.

"If it's calm, we'll go out," explains Duguid. "Whatever the weather — snowing, raining, minus 10 degrees, we get out there and get the samples we need."

Duguid and Innes lead PSF's Winter Ecology study — research testing the leading hypothesis that juvenile Chinook salmon's first winter at sea is a period of increased mortality, mainly due to starvation. Early findings from their research suggest that might not be the case.

To assess the theory, the team collects field samples at the most challenging time of year for marine research. Stormy weather often shuts down operations for weeks at a time, but the team has still completed 192 winter field days over the past six years.

"One year, the marina froze up, and we had to ice break our way out of there. We didn't have a heater, and some of the chemicals we use for sampling actually crystallized. We realized that we needed a heater — not so much for ourselves, but to keep the chemicals from freezing," says Duguid.

Sampling is conducted by microtrolling, an innovative technique that uses recreational fishing gear but is adapted to catch juvenile fish without harming them.

Once a fish is caught, it is thoroughly assessed. The team checks for injuries, parasites, and disease, collects stomach contents, and takes gill samples for genetic analysis. They also insert a tag as part of a wider PSF study investigating salmon survival bottlenecks in the Strait of Georgia.

Crucially, the fish is then released unharmed, minimizing the impact researchers have on at-risk Chinook salmon. All these data are sent to laboratories for analysis, which will later provide a big-picture view of how specific salmon populations are doing over the winter.

INNOVATIVE GENETIC ANALYSIS

Back in the lab, those tiny gill samples collected during winter field days unlock some of the study's most powerful insights. The tissue is about the size of a grain of salt but reveals unprecedented amounts of information on an individual fish's life.

In December 2025, PSF's Dr. Will Bugg published a peer-reviewed study that demonstrated that gill samples when combined with Fit-Chips — cutting-edge genetic technology — can determine whether a fish is starving.

"The Fit-Chip is a molecular tool that detects the different stressors and pathogens that a fish may be experiencing," says Dr. Bugg, who leads salmon health research at PSF. "It's really unique as we can analyze thousands of fish very quickly and make population-level assessments without harming them."

Will Duguid and Katie Innes sample a Chinook salmon on a clear winter day.

Photos: Brandon Deepwell

> **Chinook salmon are critically important. If we don't understand what's going on in the ocean, we're not going to be well-placed to make the correct decisions to protect these fish.** — Will Duguid

PSF and partners have been using Fit-Chip technology in other research projects as well, underscoring its versatility.

For example, Dr. Bugg is also using the technology to monitor juvenile salmon swimming by decommissioned open-net salmon farms in the Discovery Islands and to investigate the health of endangered West Coast Vancouver Island Chinook salmon.

"It's an incredible tool — we can measure whether a fish is experiencing disease, thermal stress, and low oxygen, just from a tiny tissue sample."

GETTING FAT ON HERRING

As the fish sampled in the Winter Ecology study return to their spawning grounds over the coming years, researchers will gain a clearer understanding of how winter conditions affect salmon survival. Findings could inform future decisions around hatchery release timing and fisheries management, depending on the strength of juvenile salmon populations.

A Chinook salmon is released unharmed after being sampled.

The good news is that in the years and regions the team has examined, fish don't appear to be starving.

"There are some indications that sometimes food is limited, but it doesn't appear that starvation is the primary driver of mortality in the winter," says Innes.

However, ocean conditions fluctuate and can quickly affect juvenile salmon survival. When populations crashed in the early 2000s, poor summer growth leading to high winter mortality was suspected, but no one was out there monitoring the fish through winter. The next time ocean conditions change and populations decline, PSF's data will make it far easier to discern whether winter is really a critical period for salmon survival.

What has been clear throughout the study is the importance of Pacific herring as a food source for salmon: results indicate that juvenile salmon that eat plenty of herring over winter are thriving.

"Fish that are eating herring have fuller stomachs and are getting a much better meal than those feeding on other prey," adds Innes.

RESTORING A SYMBOL OF BRITISH COLUMBIA

Chinook salmon are considered by many to be the most iconic species of Pacific salmon.

Ecologically, they are critical to the Pacific Northwest marine ecosystem. They are also deeply woven into the culture, food systems, and traditions of many First Nations. And for recreational anglers fishing up and down B.C.'s coast, Chinook remain the most prized catch.

Duguid and Innes are hopeful that lifting the lid on an under-researched period of Chinook salmon's life history will strengthen conservation management of these fish going forward.

There are already promising signs for the populations that they are studying on the east coast of Vancouver Island.

PSF's State of Salmon Report indicates that Chinook populations in the East Vancouver Island & Mainland Inlets are up 236 per cent compared to long-term averages, although many of these runs are supplemented by hatchery fish. But in other regions like the Skeena and the Yukon, Chinook are struggling.

"Chinook salmon are critically important. If we don't understand what's going on in the ocean, we're not going to be well-placed to make the correct decisions to protect these fish," says Duguid.

The Winter Ecology study is a collaboration between Pacific Salmon Foundation, the Juanes Lab at the University of Victoria and BC Conservation Foundation. The study is part of the broader Bottlenecks to Survival project, funded by the B.C. Salmon Restoration and Innovation Fund.

Aboard ***Everyone Everywhere***, PSF has joined the Rick Hansen Foundation during several adventures – from a live CBC Early Edition interview to a river tour with Vancouver MP Wade Grant.

NEW BOAT GIVES EVERYONE, EVERYWHERE THE CHANCE TO FISH

A new, fully accessible boat, aptly named *Everyone Everywhere*, is removing barriers to the outdoors for people with disabilities in British Columbia.

Launched in May 2025 as part of the Rick Hansen Foundation's Accessible Outdoors Program, the boat is a shining light for recreational inclusivity and accessibility.

The vessel is purpose-built with ramps, wider doors and windows, scissor lifts, an accessible washroom, and even adaptive fishing rods.

"The idea behind our accessible, custom-built boat *Everyone Everywhere* is to demonstrate that the outdoors belongs to everyone. It's been incredible to see the impact this program has had already and I'm passionate about giving everyone the opportunity to experience the natural beauty that British Columbia has to offer," says Rick Hansen.

For North Vancouver native Leo Sammarelli, who suffered a life-changing spinal cord injury in 2017, the chance to get out on the water and go fishing last October was a unique opportunity.

"Being on a fully accessible boat was freeing. It was amazing. I've never experienced anything like that before," he says.

At the time of writing, Sammarelli is preparing to represent Team Canada in Para Nordic skiing at the 2026 Milano Cortina Paralympic Games. Competing in the Paralympics is a full circle moment for Sammarelli, who first got into sports as a teenager in southern Italy.

"It's a surreal experience to reach a goal that I thought was almost impossible and prove to myself that I can compete at the top level again on a very high-performing Canadian team."

BREAKING DOWN BARRIERS FOR SALMON

Rick Hansen has a deep-rooted passion for salmon and has supported the Pacific Salmon Foundation for decades. He has often said that fishing aided his recovery following the car crash that left him paralyzed aged 15.

Some of his career achievements include representing Canada in the Paralympics and the Man in Motion World Tour, where he travelled 40,000 kilometres over 26 months in his wheelchair to create awareness of the potential of people with disabilities and to raise money to remove barriers.

"Fishing was a huge part of my rehabilitation journey; it helped me heal and become a champion of salmon and sturgeon conservation," says Hansen.

Over the years, Hansen has worked closely with government, scientists, anglers, and First Nations to conserve wild Pacific salmon and sturgeon. His passion for conservation has always been tied to his advocacy for accessibility.

"We are proud to partner with Pacific Salmon Foundation, the Fraser River Sturgeon Conservation Society, and many others so that more people with disabilities can experience the outdoors, and like me, become champions of change to make a difference in creating healthier salmon populations," says Hansen.

Like Rick Hansen, Sammarelli says the outdoors is his freedom and therapy. Along with Nordic skiing, he also runs an adaptive boxing program in Vancouver and has scaled the Grouse Grind for charity.

"I don't think about my paralysis or my wheelchair when I'm outdoors," he explains. "I almost forget I'm in a wheelchair — skiing, fishing, that's what it's all about."

The Rick Hansen Foundation Outdoor Accessibility Program is made possible through the support of The Peterson Family Foundation. PSF is a proud community partner along with Power To Be and the Fraser River Sturgeon Conservation Society.


Leo Sammarelli uses adaptive fishing rods and the custom ramps on the *Everyone Everywhere* boat.

PEOPLE FOR SALMON:

MEET FARLYN CAMPBELL, SALMON STAMP ARTIST

Farlyn Campbell spent years catching and monitoring salmon from the deck of a boat before they began appearing in her sketchbook. An experienced skipper, salmon fisher, and researcher based in the Discovery Islands, Campbell is also the artist behind the 2026-27 Salmon Conservation Stamp.

“Taking the time to observe and draw the salmon accurately is my way of honouring them,” says Campbell, a first-time Salmon Stamp Competition participant and winner. “There is beauty in the details, which highlight how incredible these fish are.”

The anatomical drawing and watercolour painting of a large spring Chinook — Smiley — was inspired by a childhood fishing trip photo.

Starting April 1, hundreds of thousands of anglers will purchase the stamp to catch and retain Pacific salmon. The stamp generates $1.5 million in revenue, which PSF amplifies with donor support to fund more than 150 community-led salmon conservation initiatives every year.

A LIFETIME AROUND SALMON

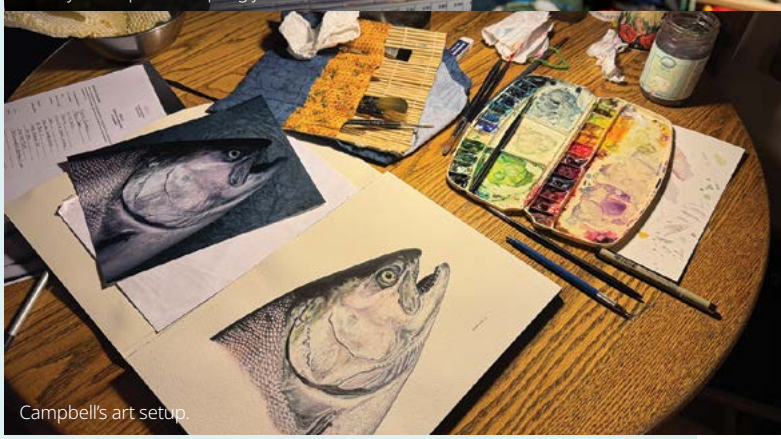
Campbell grew up in a fishing family in Owen Bay on Sonora Island, where chum, pink, and Fraser River sockeye pass through the Okisollo Channel year-round.

“Sleeping down on the dock in the summer, we’d often hear the salmon smolts flipping as they held in the bay, waiting for the tide to turn,” she says.

In the early 2000s, Campbell joined research efforts to monitor juvenile salmon for sea lice and disease throughout the Discovery Islands area. Her hands-on fieldwork in collaboration with many scientists — including PSF staff — has helped track the impacts of Atlantic salmon open-net pen farms on wild Pacific salmon as they migrate to sea.

The data they collected was key in contributing to the removal of farms from the Discovery Islands between 2020 and 2021. This January, the Federal Court of Appeal upheld the decision to keep salmon farms out of the Discovery Islands.

Farlyn Campbell sampling juvenile salmon.



Campbell’s art setup.

Photo (top): Tavish Campbell

“The field is changing fast,” Campbell says. “What’s exciting is knowing the data is being used in a lot of different ways to better understand what these fish are facing.”

As open-net salmon farms are phased out from B.C.’s coastal waters, PSF will continue to work closely with researchers like Campbell to monitor juvenile salmon and track environmental conditions around former farm sites through 2028.

BRIDGING ART, COMMUNITY, AND CONSERVATION

This past fall, an unexpectedly strong return of Fraser River sockeye and renewed fisheries openings allowed Campbell to go fishing with her family and neighbours for the first time in years.

“The declines have been discouraging but the story of salmon is vast and it’s far from over. The recent large returns are a reminder that salmon are far more resilient than we give them credit for," she says.

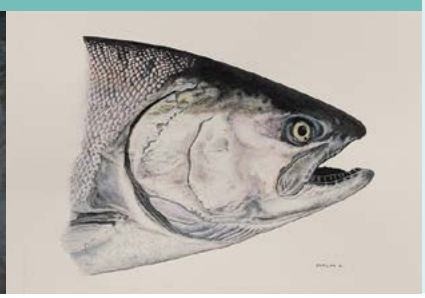
Since 1994, PSF has leveraged stamp funds on behalf of Fisheries and Oceans Canada, directing nearly $32 million to more than 3,600 community-led restoration, enhancement, and stewardship projects. Their impact is further amplified through generous donor support.

Against this backdrop, Campbell’s hope is that the new stamp offers a moment of optimism in a difficult time for salmon and those who care about them.

“Salmon connect people across generations, to place and to each other. The stamp is a way to celebrate that and encourage people to think about salmon conservation.”

To help boost the impact of community-led conservation, donate today: *PSF.CA/DONATE*

The Chinook salmon that inspired Campbell’s winning entry, and Farlyn Campbell’s ‘Smiley’ — featured on the 2026/2027 Salmon Conservation Stamp.



THE LATEST ON OPEN-NET PEN SALMON FARMS IN B.C.

PSF advances science, and consultation carries on, leading up to the 2029 ban on open-net pen salmon farms in B.C.

Open-net pen salmon aquaculture infrastructure in the Discovery Islands.

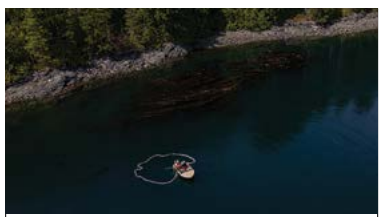
Photos: Chelsea Pope

With three critical years left until the ban on open-net pen salmon aquaculture takes effect, the Pacific Salmon Foundation (PSF) is building on more than a decade of peer-reviewed science. By continuing research on risks of pathogen transmission from farmed to wild salmon, PSF is helping shape an evidence-based path forward.

The transition away from open-net pen salmon farming has been years in the making. The federal government initially committed to phasing out the practice in 2019. Five years later, Canada announced that open-net pens will be banned in B.C. by 2029.

This move was celebrated as a win for wild Pacific salmon, which face risks from these underwater net-pens that breed more than just fish. These high-density fish farms can spread parasites and pathogens into the migration paths of wild salmon, as evidenced by dozens of studies.

"The decision to ban open-net pen Atlantic salmon aquaculture really matters for wild Pacific salmon, because it eliminates one of the major threats to wild Pacific salmon that we actually have the power to control," says Dr. Andrew Bateman, who leads habitat and ecosystem science at PSF.



CURRENT STATUS OF OPEN-PENS IN B.C.

Of the roughly **100 open-net pen salmon farms** that once operated in B.C., **about 45 of those have been closed** to date in decisions made either by the government or local First Nations. **Roughly 55 salmon farms remain in operation** or are licensed to operate in B.C. today. The majority of those exist along the west coast of Vancouver Island or on the Central Coast of B.C.

Since the ban was announced, the federal government has led consultations with key entities and released a draft transition plan, for which PSF provided science-based feedback. The final transition plan, which will outline the next steps to implement the ban, was initially scheduled for release in 2025, but has been delayed.

KEEPING WILD SALMON HEALTHY

For more than a decade, PSF, independent scientists, academic institutions, and First Nations have studied the risks open-net pen salmon farming pose to wild salmon.

Through the growing body of research, three prominent infectious agents of concern have emerged:

1. **Sea lice:** In the Broughton Archipelago, sea lice outbreaks from salmon farms have resulted in reduced survival in pink and coho salmon. Lab research has also shown that sockeye can experience skin erosion, scale loss, and stress from sea lice.
2. ***Tenacibaculum maritimum*:** The marine bacterium *Tenacibaculum maritimum* is found globally, but amplified by Atlantic salmon farms in B.C., and presents a substantial risk to sockeye, Chinook, and coho salmon.
3. **Piscine orthoreovirus:** Piscine orthoreovirus (PRV) originated in the Atlantic Ocean and was introduced to B.C. with the advent of salmon farming. PRV is tied to poorer survival of Chinook and coho salmon, and has been linked to disease in Pacific salmon.

A TIMELINE OF KEY DATES

1970s–80s:
Salmon farming begins in B.C.

2001
Independent scientists begin monitoring wild salmon.

2013
PSF, Fisheries and Oceans Canada, and GenomeBC launch the Strategic Salmon Health Initiative to study the impacts of infectious agents on wild salmon.

2018
PSF releases position statement: "British Columbia and Canada must put wild Pacific salmon first… a move to closed-containment salmon aquaculture is recommended."

2019
Canada commits to transitioning away from open-net pen salmon farming in B.C.

2020
Fisheries and Oceans Canada announces closures of farms in Discovery Islands to protect wild salmon.

2022
shíshálh First Nation announces the closure of salmon farms in their territories in the lower Sunshine Coast.

2023
'Nam̱gis, Kwikwasut'inuxw Haxwa'mis, and Mamalilikulla First Nations mandate the closure of farms in their territories in the Broughton Archipelago.

2024
Canada announces ban on open-net pen salmon farming in B.C. by 2029.

2026
Federal Court of Appeal upholds decision to keep fish farms out of the Discovery Islands.

Photo: Brandon Deepwell

Photo: Chelsea Pope

> **Open-net pen salmon farms are fully open, where anything in the water can flow in or out of the net. Closed containment systems should be truly closed to the transfer of everything, especially infectious agents, which is imperative from the perspective of wild salmon**
>
> — **Dr. Will Bugg**

Dozens of other infectious agents associated with salmon farms may pose a risk to wild salmon and require further research. To minimize the risk of these pathogens spreading to wild salmon, PSF has called for the transition of Atlantic salmon aquaculture from open-net pen farms to closed containment — a technique where an impermeable barrier prevents the flow of waste, viruses, and bacteria from entering the marine environment.

"Open-net pen salmon farms are fully open, where anything in the water can flow in or out of the net. Closed containment systems should be truly closed to the transfer of everything, especially infectious agents, which is imperative from the perspective of wild salmon," explains Dr. Will Bugg, a postdoctoral scientist with PSF.

There's also an in-between system: semi-closed containment. As the name suggests, this hybrid option is partly permeable and was developed to protect farmed salmon from sea lice. However, this method still allows the free flow of materials between farms and the ocean.

"Semi-closed containment, or any containment that allows for the transfer of infectious agents into the external environment, is not a viable solution to mitigate the risks that salmon farms can pose to wild salmon," says Dr. Bugg. "The Pacific Salmon Foundation supports the move to entirely closed containment salmon farming in British Columbia."

MORE SCIENCE ON THE WAY

PSF continues to pursue key science on the issue.

"The more we study, the more we find the risks to wild salmon from open-net pen salmon farming to be real — underscoring the importance of implementing the B.C. ban," says Dr. Bateman.

Upcoming research will explore new evidence on *Tenacibaculum*'s impacts on Chinook salmon and links between Piscine orthoreovirus and a condition known as 'Heart and Skeletal Muscle Inflammation.'

PSF will continue monitoring wild juvenile salmon this spring in the Discovery Islands as they migrate out to sea, collecting additional data to advance our understanding of the impacts of open-net pen salmon farms on wild Pacific salmon. These monitoring efforts are currently funded through 2028.

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Working toward a more sustainable future for Pacific salmon
Wheaton Precious Metals is proud to support the Pacific Salmon Foundation in its work to save and restore Pacific salmon and the ecosystems they depend on. Through research, restoration, and community partnerships, we are helping safeguard this vital species for future generations.
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