THE PACIFIC SALMON FOUNDATION MAGAZINE

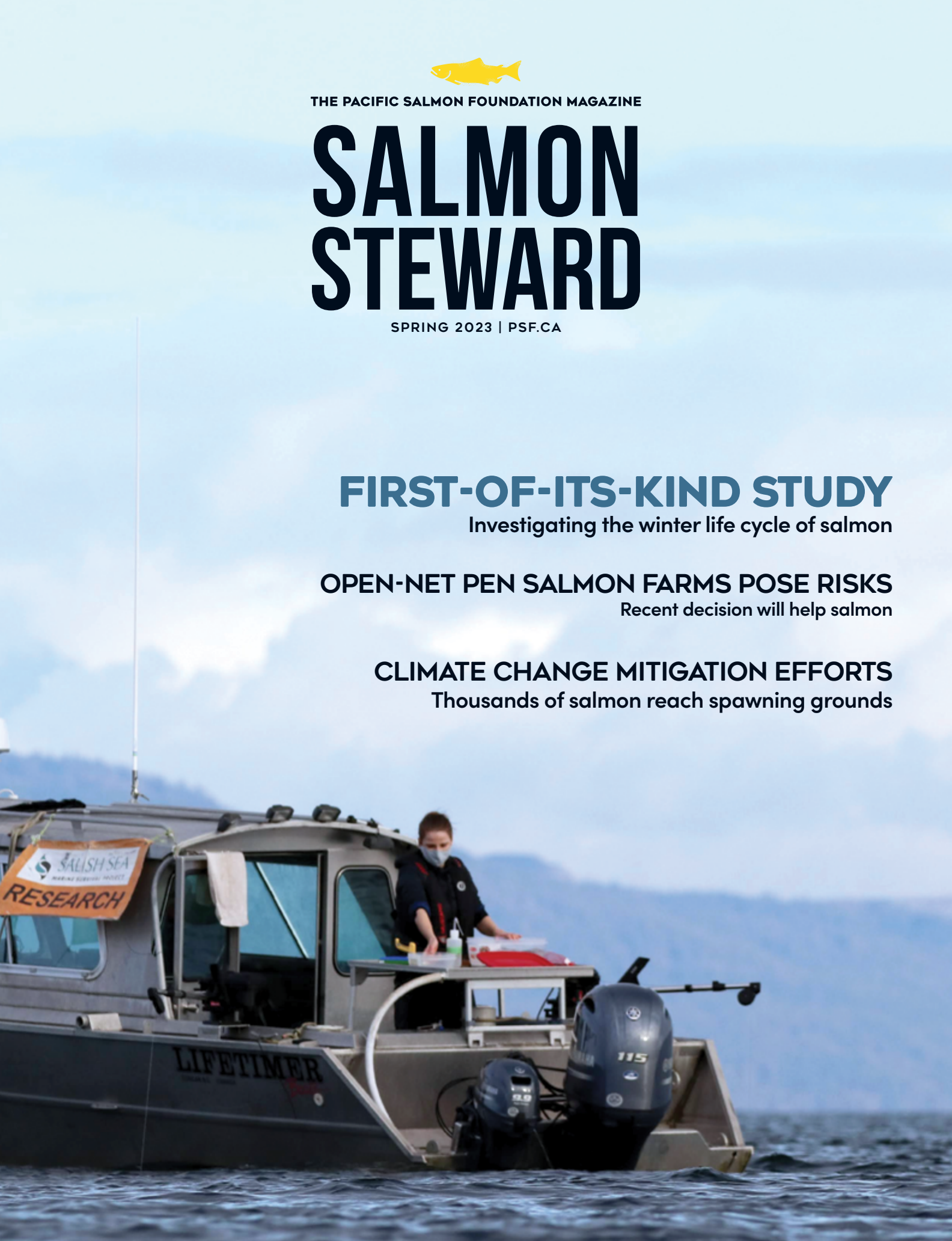
SALMON STEWARD

SPRING 2023 | PSF.CA

FIRST-OF-ITS-KIND STUDY
Investigating the winter life cycle of salmon

OPEN-NET PEN SALMON FARMS POSE RISKS
Recent decision will help salmon

CLIMATE CHANGE MITIGATION EFFORTS
Thousands of salmon reach spawning grounds



SALMON STEWARD

SPRING 2023

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 Canadians for generations to come.

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CEO'S MESSAGE

Photo: Jeff Vinnick

Save our Salmon launch with Hon. Joyce Murray, Fisheries and Oceans Canada, and Jordan Point, executive director, First Nations Fisheries Council of B.C.

Across British Columbia, many Pacific salmon stocks are threatened or endangered; however, we are optimistic that through coordinated efforts, recovery is possible.

In 2022, PSF was pleased to see the creation of B.C.'s Ministry of Water, Land and Resource Stewardship. We are grateful to Minister Josie Osborne for her work in developing the new ministry. We welcome Minister Nathan Cullen as its new lead and Fin Donnelly as Parliamentary Secretary for Watershed Restoration. We see signs that this ministry will drive B.C. to take a leadership role in protecting and rebuilding salmon habitat.

We offer our support and encourage immediate action on the following:

- Developing a coordinated plan with Federal and Indigenous governments for rebuilding Pacific salmon.
- Developing programs and funding to ensure the long-term commitment to Pacific salmon restoration.
- Implementing the B.C. Wild Salmon Strategy.

We continue our work through the Pacific Salmon Action Dialogues with the First Nations Fisheries Council of B.C. to bring people together with the common goal of restoring salmon. Look to the next edition of *Salmon Steward* for a report on the spring dialogue focused on clear actions and outcomes.

PSF applauds the Government of Canada's Feb. 17 decision under the leadership of the Hon. Joyce Murray, Minister of Fisheries, Oceans and the Canadian Coast Guard (DFO), to reduce risk to wild Pacific salmon by not renewing 15 licenses for open-net pen Atlantic salmon farms in British Columbia's Discovery Islands.

This decision is a consequential step forward in the collective efforts to reduce risks to wild Pacific salmon. A decade of rigorous, peer-reviewed research undertaken by PSF and partners has outlined numerous risks open-net pen salmon farms pose to wild Pacific salmon through the amplification and transfer of harmful parasites and pathogens.

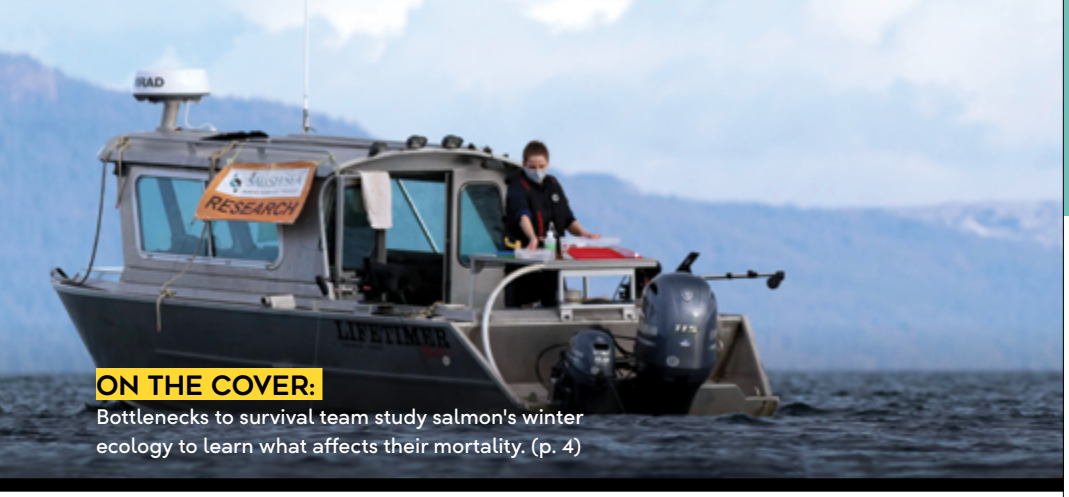
In a National Observer podcast, Hon. Murray spoke about the decision. PSF supports her sentiments, quoted below.

"The pens have a lot of fish in them and that amplifies pathogens and parasites which are released into the ocean," said Hon. Murray. "When there is uncertainty as to the science and the real concern about cumulative effects... the Fisheries Act actually compels me to take a precautionary approach to the management responsibilities that I have, and so that's what I've done."

In the meantime, we continue working with Indigenous governments that are seeking science advice on decisions about existing salmon farms in their traditional waters. And with partners across the province, we continue our peer-reviewed scientific research for the conservation of wild Pacific salmon.

Together we can help restore wild Pacific salmon. It's salmon first, salmon always, and we don't go it alone.

Michael Meneer
President & CEO, Pacific Salmon Foundation



ON THE COVER:
Bottlenecks to survival team study salmon's winter ecology to learn what affects their mortality. (p. 4)

Photo (top): Nick Bohlender

COMMUNITY CORNER

2023/2024 SALMON CONSERVATION STAMP

Artist Valerie Rogers's Rapid Ascent won the 35th annual Salmon Conservation Stamp Competition. Learn how sales of the stamp support community salmon projects (p.8).

BC WILD SALMON DAY JUNE 1

Mark your calendar for June 1 to show your love for salmon! We encourage all salmon supporters, advocates, and partners to promote #BCWildSalmonDay with social media posts, videos, and messages about what salmon mean to you.

psf.ca/wildsalmon

HAPPY 40TH BIRTHDAY TO FALSE CREEK FERRIES

Thanks to False Creek Ferries for donating its birthday proceeds on Oct. 22, 2022 to Vancouver Maritime Museum, the Greater Vancouver Food Bank, and PSF.

WILL POWER: A LEGACY FOR SALMON

PSF partners with Will Power, a national public education campaign, to inspire Canadians to think differently about charitable giving. We hope you will consider leaving a positive legacy for salmon through your will.

psf.ca/willpower

PACIFIC SALMON ACTION DIALOGUES

Co-hosted with the First Nations Fisheries Council of B.C., the fifth of the Dialogues that engage a diverse coalition of leaders including First Nations, federal and provincial governments, and non-governmental conservation organizations working towards a collaborative framework to drive action for salmon will occur this spring.

PERCY WALKUS EGG TAKE 2022

The Percy Walkus Hatchery is known for enormous Chinook salmon that return to Wuikinuxv territory. Each fall, the eggs are collected at the "egg take" and used for salmon enhancement efforts. In October, thanks to hatchery team members, fishing lodge staff, individual volunteers, and more than $600,000 in donations, a successful egg take occurred despite delayed rains and late salmon runs. The crew incubated nearly 300,000 eggs.

GALA UPDATES

The South Vancouver Island Gala Dinner & Auction was held Feb. 25 at the Victoria Conference Centre. More than 350 people attended and $175,000 was raised. At the event, former B.C. Premier John Horgan was honoured for his commitment to salmon and for a $5M grant to PSF during his tenure. A special thank you goes out to Finest at Sea Ocean Products, our volunteer dinner-organizing committee, as well as our donors and sponsors for their support in making this 28th annual event a success.

psf.ca/events

Brian Riddell (PSF), John Horgan, and Michael Meneer (PSF).

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WINTER RESEARCH PROVIDES IMPORTANT CLUES TO SALMON MYSTERY

THE SALMON MIGRATION DOESN'T STOP FOR COLD WEATHER, NOR DO FRIGID WATERS DETER RESEARCHERS FROM LEARNING ABOUT THE WINTER LIFE CYCLE.

Photo: Nick Bohlender

From the northern reaches of the Broughton Archipelago to the southern tip of Vancouver Island, PSF scientists work with partners throughout the winter in their quest to learn more about salmon.

Although the first winter that salmon spend in the ocean is thought to play a critical role in their overall survival, surprisingly little is known about this period. This is in no small part due to the challenges of conducting ocean research in winter weather.

Thanks to a collaboration launched in 2020 by PSF and British Columbia Conservation Foundation (BCCF) and supported by the British Columbia Salmon Restoration and Innovation Fund (BCSRIF), the Bottlenecks to Survival program investigates when and where Chinook, coho, and steelhead face critical mortality periods or "bottlenecks" during the freshwater and early marine periods of life.

The Bottlenecks program focuses on factors that may lead to declines in salmon populations including predation, competition, and climate change. The research team focuses primarily on the East Coast of Vancouver Island.

Supervised by Isobel Pearsall at PSF and Jamieson Atkinson at BCCF, the Bottlenecks team collects **first-of-its-kind data** on juvenile Chinook **salmon winter habitat, diet, and health** in the Salish Sea.

"As many populations of wild Chinook, coho, and steelhead have experienced steep declines in the Salish Sea, and considering their importance, it is urgent that we increase our understanding of the factors and mechanisms that may contribute to their reduced numbers," says Pearsall.

Under Pearsall's leadership, PSF's Bottlenecks program activities are managed by post-doctoral fellow Will Duguid of the University of Victoria (UVic).

"At its core, the Bottlenecks program seeks to identify *if* and *when* there are critical mortality periods in the life of Chinook and coho salmon and steelhead. Understanding if and when such periods occur can help managers and those who fish understand how different strategies can be employed to aid in salmon recovery," says Duguid.

"In addition to understanding *when* critical mortality occurs, we also conduct complementary studies to understand *how* death may occur, for example by predation, starvation or fishing."

WINTER FIELD WORK: MICROTROLLING AND VOLUNTEER ANGLERS

The research team uses data collected by Passive Integrated Transponder (PIT) tags to help answer their questions. About the size of a grain of rice, the tags provide a unique identification code — similar to the way the 'tap' feature works on a bank card — when their host fish encounters an antenna. The tags track individual fish survival back to the river and enable a comparison of survival of fish tagged at different life-history stages.

A lifelong angler, Duguid developed an economical way to nonlethally sample and tag juvenile Pacific salmon called "microtrolling."

His method repurposes recreational fishing gear and small boats so that juvenile salmon can be studied and not harmed.

Duguid works closely with BCCF's Atkinson, fisheries biologist and co-manager of the Bottlenecks program. Atkinson oversees volunteer anglers — citizen scientists who use their own boats to collect data.

During 2022, Atkinson noted that the team had outstanding catches — 40 to 50 per day — in the winter in the Discovery Islands area.

This year, not so much.

Researchers Will Duguid and Katie Innes.

Salmon studied for winter ecology research.

Photos: Nick Bohlender

Bottlenecks to survival team study salmon's winter ecology to learn what affects their mortality.

> "As many populations of wild Chinook, coho, and steelhead have experienced steep declines in the Salish Sea, and considering their importance, it is urgent that we increase our understanding of the factors and mechanisms that may contribute to their reduced numbers,"
>
> *says Isobel Pearsall, director of PSF's Marine Science Program.*

"The migrations and movements of Chinook this year were about a month later when compared to previous years due to the cold spring. We have yet to observe those similar catches as last year, but we are still hoping the fish will show up."

Atkinson notes that it's too early to speculate on why catches have changed, considering the first few years of the study have had extraordinary anomalies like Covid reducing the number of sea-going vessels, a heat dome, atmospheric river, late freshet, and extensive drought.

"We need at least 10 years of data to show a clear picture," says Atkinson.

WINTER ECOLOGY: DIET, GROWTH AND DISEASE

While PIT tagging can tell us if winter is a critical period for survival, additional sampling is needed to know why it might be a critical period.

Duguid supervises a team of graduate students within Professor Francis Juanes's laboratory at UVic. He and his team are supported by PSF-Mitacs funds that leverage Canadian federal and provincial resources to advance innovation.

Masters student **Katie Innes** has been working with Duguid on the winter ecology research since 2020. Her work focuses on the overwinter feeding and energy of juvenile Chinook. She studies their diet, physical condition, and first-year growth, and how these factors may influence survival rate.

"The first year of Pacific salmon life is a black box. We don't know what they're eating from October through March," says Innes. "We're studying how the energy content of their prey relates to salmon health."

Using a non-lethal sampling method that includes flushing their stomach contents, Innes is able to learn exactly what first-year salmon eat. And she's had some interesting findings.

"Sometimes the prey is still alive. We've found Northern Anchovy, tiny sea stars, crabs, crab larvae, krill, and octopus. We've found squid with their tentacles still moving."

Innes explains that energy-dense (high calorie) foods are best for salmon to eat to grow big during their first year, and both fish and zooplankton prey are important.

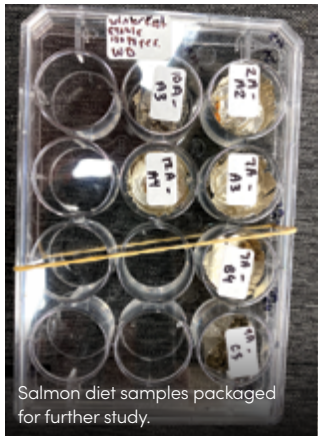
Photo: Katie Innes

Salmon diet samples packaged for further study.

HEAR HEAR: ACOUSTIC TAGGING IN THE WINTER

Wesley Greentree, a UVic colleague, works with the Bottlenecks program studying salmon ecology and migration behaviour using acoustic tags.

From October through January, Greentree places small electronic "acoustic" tags in the body of first-year Chinook. The tags produce a series of high-frequency pings that encode a unique identifier. The sounds are detected by hydrophones, which decode the pings into the unique identifier which allows the research team to know when a tagged fish swims past a certain location.

"Our goal is to use acoustic tags to track salmon as they move within and out of the Salish Sea," says Greentree.

Some Chinook Salmon stay resident in the Salish Sea for most or all of their marine life.

"We want to determine if resident Chinook differ from Chinook that migrate out of the Salish Sea, and if so, how. For example, do residents and migrants differ in body size, early marine growth or pathogens? And if so, does this affect their survival?"

The second goal of this project is to determine when Chinook salmon migrate out of the Salish Sea. Greentree looks forward to exploring this important piece of the puzzle next.

"I grew up in Campbell River so it is exciting to be on the water the entire winter, and to work on salmon so close to home," he says.

This program is supported by the B.C. Salmon Restoration and Innovation Fund (BCSRIF) through Fisheries and Oceans Canada and the Province of B.C.

Open-net pen aquafarm water mixes with ocean water, impacting wild Pacific salmon.

Photo: Tavish Campbell

OPEN-NET PEN SALMON FARMS POSE RISKS TO WILD STOCKS

PSF APPLAUDS DECISION TO DISCONTINUE ATLANTIC SALMON FARM LICENSES

A decade of rigorous, peer-reviewed research undertaken by PSF and partners has outlined numerous risks open-net pen salmon farms pose to wild Pacific salmon through the amplification and transfer of harmful parasites and pathogens.

On Feb. 17, 2023 the Government of Canada, under the leadership of the Hon. Joyce Murray, Minister of Fisheries, Oceans and the Canadian Coast Guard (DFO), announced the decision to reduce risk to wild Pacific salmon by discontinuing 15 licenses for open-net pen Atlantic salmon farms in British Columbia's Discovery Islands.

"The state of wild Pacific salmon is dire, and we must do what we can to ensure their survival. This was a difficult but necessary decision. By taking an enhanced precautionary approach in the Discovery Islands area, the Government of Canada will help ensure the well-being of wild Pacific salmon for our children and grandchildren," says Hon. Murray.

PSF is grateful to all who took part in the consultation process in support of this necessary and scientifically grounded decision.

"The PSF Salmon Health team has regularly offered measured scientific advice, based on peer-reviewed research, to Minister Murray and others who seek it. The published evidence consistently reaffirms the potential risks that open-net salmon farms pose to wild Pacific salmon and the need for a highly precautionary approach," says Andrew Bateman, PhD, manager of PSF's Salmon Health Program.

The Government of Canada's decision is a consequential step forward in the collective efforts to reduce the various risks to wild Pacific salmon. The move will support broader recovery efforts of wild Pacific salmon populations that are experiencing historic declines — such as Fraser River Sockeye. As Pacific salmon face a complex suite of stressors, due to rapid and intensifying impacts of climate change as well as human impacts on their ecosystems, this decision directly addresses a risk factor that is under immediate human control.

PARASITIC SEA LICE RISK

One of the ongoing specific risk factors at play in the context of open-net pen salmon farms is that of parasitic sea lice.

Members of the PSF Salmon Health team have contributed to the large body of research in B.C. that shows a direct connection between salmon farms and levels of sea lice on nearby juvenile wild Pacific salmon. That relationship has been well established for decades, bolstered by the fact that sea louse levels on wild juveniles decline when on-farm sea louse levels are managed effectively. Further peer-reviewed science shows that sea louse infestations are tied to population declines in certain Pacific salmon species.

Unfortunately, DFO published a report in January that claimed to show no direct connection between sea lice on farms and sea lice on juvenile wild salmon.

"We are deeply troubled by the quality of science advice in this report," says Bateman.

After reviewing the report thoroughly, he and a diverse group of 15 other professors and researchers wrote to Minister Murray to express professional dismay at serious scientific failings, request access to the data involved, and suggest ways to improve the science.

"Our concerns are with both the technical conclusions of the report and the process involved, which included no truly independent scientific review or input," says Bateman. "In fact, we showed that by taking the report's analysis just one step further, its own findings demonstrate a clear overall connection between farm lice and lice on wild salmon."

PSF has long called for the minister to assemble an independent panel of science experts from outside of government to provide the best possible scientific advice. This report is an example of why such advice is critical.

We all depend on the health of wild Pacific salmon, and their future depends on wise decisions — like discontinuing open-net pen Atlantic salmon licenses in the Discovery Islands.

psf.ca/SalmonHealth

Sea lice from salmon farms pose a threat to numerous wild salmon populations.

PSF's Dr. Emiliano Di Cicco and Dr. Andrew Bateman.

Photos: (Left) Tavish Campbell (Right) Amy Romer

CLIMATE-CHANGE MITIGATION EFFORTS CONTINUE

PEOPLE FOR SALMON WORK TOGETHER FOR COLDWATER COHO

BYPASS CHANNEL ALLOWS THOUSANDS OF SALMON TO REACH SPAWNING GROUNDS JUST BEFORE WINTER

The November 2021 floods caused significant damage to B.C. rivers, impacting salmon and their habitats in many ways. One of the most immediate concerns was a log jam blocking coho salmon passage to the best spawning grounds in the Coldwater River.

A flight in November 2022 above the Coldwater River in the Nicola Valley of the B.C. Interior captured footage of an unusual and distressing sight. Coho salmon were seen holding below the log jam and trying to get past, but unable to access their spawning habitat.

However, this Coldwater coho population received some good news just in time for spawning.

In the late fall during the first snowfall, a dedicated team came together and helped the fish gain access to their spawning grounds.

"When you see fish holding like that, butting their heads up against a blockage, some of them resorting to spawning in sub-par substrate you just want to help get them to a better place on the river where their offspring stand a better chance to survive and thrive," says Lynda Ritchie, a restoration biologist with Fisheries and Oceans Canada (DFO).

The destination is especially important for this Coldwater coho population that has shown good signs of recovery in recent years; supporting their spawning is imperative for continued recovery.

Thanks to a coordinated effort by the Nicola Fisheries Emergency Working Group team comprising the Scw'exmx Tribal Council, DFO, BC Ministries, Pacific Salmon Foundation, Kerr Wood Leidal, Rock Solid Industries, and Triton Environmental, the team aligned promptly to help the Coldwater coho, which were being preyed upon by predators while holding below the log jam.

The team constructed a bypass channel to see if it could provide urgent support. The next day, coho were seen swimming past the log-jam site, successfully accessing more than 10 kilometres of important habitat.

"It was such a feeling of relief to see the numbers of coho that were able to make it up steam and begin to spawn. Six kilometers of stream above the jam was filled with redds just days after we built the channel," says Ritchie. "Everyone came together, made the work happen, and the fish got to where they needed to go."

PSF funded the site assessment and provided approximately $50,000 thanks to the Pacific Salmon Endowment Fund and generous donors.

"Moving forward with partnership structures has been very constructive for how we respond to flooding," says Ritchie. "For example, PSF's role in supporting action plan delivery for this and other urgent works has been incredibly helpful throughout the salmon flood recovery process."

Fisheries Technologist Jessica Urquhart with the Scw'exmx Tribal Council concurs.

"PSF's involvement has been helpful in seeing this project, supported by Chief Spahan of the Coldwater Band, move forward," says Urquhart.

AFTERMATH OF THE 2021 FLOODS

The Coldwater River bypass channel was one of many projects completed with more assessments and projects still underway.

Immediately after the floods, PSF promptly aligned partners and funded $300,000 in urgent salmon recovery efforts. As the emergency subsided, PSF assisted to convene leaders and experts from First Nations, government, NGOs, and volunteers, and continued to fund game-changing recovery efforts in high-priority salmon-producing areas.

Due to climate change, events like the 2021 floods and the drought of 2022 will occur more frequently and continue to threaten endangered salmon populations.

"These time-sensitive projects can act as a catalyst for improved planning, preparation, and to advance integrated management and nature-based solutions that will ultimately be more compatible with salmon sustainability," says Jason Hwang, VP Salmon at PSF.

"We need to stop treating events like these as a surprise. Instead, we need to start changing our behaviours and take measures to reduce impacts from our development activities and invest in measures that will make our watersheds more resilient and help salmon adapt to climate change."

Before: November aerial view of Coldwater River log jam blocking salmon from accessing more than 10 kilometres of spawning habitat.

A small group of adult coho about 40 metres below the log jam wait to access spawning habitat.

After: The bypass channel was created, logs were placed back over top to provide cover and structure, important habitat elements for salmon spawning. And Coho successfully used the bypass channel, spawning upstream of the log jam.

COMMUNITY-BASED STEWARDSHIP

FOR 30-PLUS YEARS, PSF'S COMMUNITY SALMON PROGRAM HAS FUNDED LOCAL STEWARDSHIP PROJECTS.

PSF recently awarded $227,828 to 48 community-led salmon conservation, enhancement, and habitat restoration projects across British Columbia through grants from the Community Salmon Program.

These projects represent $2 million in total value across communities.

The Community Salmon Program, launched by PSF in 1989, empowers local volunteers and community members to take action to conserve and rehabilitate Pacific salmon and their habitats. The program accepts new applications for grants each spring and fall.

In the 33 years since its inception, PSF's Community Salmon Program has awarded $25.9 million to more than 3,000 projects across B.C. and the Yukon and engaged roughly 30,000 volunteers.

MEET TWO CURRENT COMMUNITY SALMON PROGRAM GRANTEES PROUDLY SUPPORTED BY PSF:

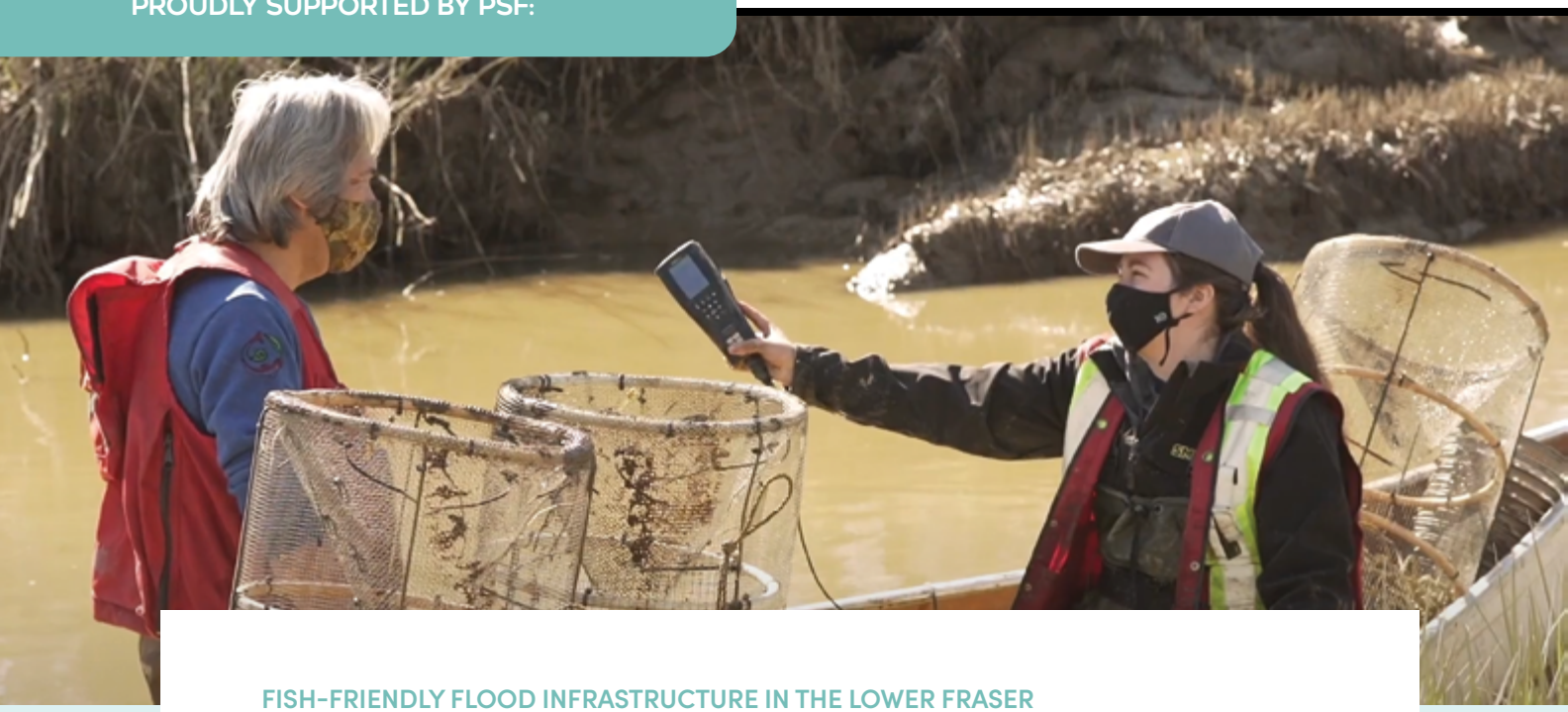

Photo: Fernando Lessa

FISH-FRIENDLY FLOOD INFRASTRUCTURE IN THE LOWER FRASER

More than 150 flood-control structures in the Lower Mainland block an estimated 1,500 kilometres of potential salmon habitat.

Resilient Waters — a collaboration between MakeWay Charitable Society, Lower Fraser Fisheries Alliance, Watershed Watch Salmon Society, Pearson Ecological, more than 10 First Nations groups, and many others — seeks to reconnect vital wild salmon habitat in waterways adjacent to the Lower Fraser River by modernizing aging infrastructure such as floodgates, pumps, and dikes.

The project assesses habitat quality and fish passage at 25 high-priority sites scattered across the Lower Fraser basin including sloughs and creeks in Delta, Port Coquitlam, Pitt Meadows, Langley, and Chilliwack. PSF funding will help cover the costs of genetic analysis of samples of Chinook and coho salmon to determine the origin of salmon accessing (or attempting to access) Lower Fraser floodplain habitats.

IMPROVING WATER QUALITY IN THE SOMENOS WATERSHED

The Somenos watershed, a sub-watershed of the Cowichan Valley, has long faced ecological pressures from development, agriculture, and industrial activity. Over time, these disturbances have led to a decline in water quality — a major limiting factor for salmon recovery. Chum salmon historically spawned at inflow streams of Somenos Lake but can no longer due to low dissolved oxygen levels. Coho salmon currently have limited access to the spawning grounds, but their passage is at risk if creek conditions continue to decline.

A multi-year project by Somenos Marsh Wildlife Society, in partnership with Cowichan Tribes and the Municipality of North Cowichan, aims to improve water quality and restore salmon back to historical numbers. Through their GreenStreams Strategy, they restore and protect riparian areas with research, ecological restoration, citizen science programs, and community partnerships.

With funding support from PSF, the Somenos Marsh Wildlife Society will replace an aging water quality meter and in-stream temperature sensors to ensure the long-term collection of reliable water quality data continues.

SALMON CONSERVATION STAMP SALES BENEFIT LOCAL PROJECTS

The federal **Salmon Conservation Stamp**, a decal which anglers purchase with their saltwater fishing licence in order to keep wild salmon, is the primary funding source for the Community Salmon Program.

"For over 30 years, PSF has stewarded revenue from the Salmon Conservation Stamp on behalf of DFO to advance critical salmon restoration, conservation, and enhancement projects in British Columbia and the Yukon," says Hon. Joyce Murray, Minister of Fisheries, Oceans, and the Canadian Coast Guard.

"We all want to return this keystone species to abundance. This partnership between the sport fishing community, PSF, and DFO represents a vital form of collaboration required to rebuild and restore Pacific salmon populations and their habitats."

DONATE TODAY:

The Community Salmon Program also benefits from corporations with sustainability goals. Trans Mountain, Mosaic Forest Management, Methanex, Seaspan, Paper Excellence, Secure Energy, Neptune Terminals, ENCORP PACIFIC, Sutherland Foundation Inc., and Pembina Pipeline support the program.

You can support the Community Salmon Program by making a donation: *psf.ca/donate*

Credit: Prince of Whales

SALMON GET A BOOST

PRINCE OF WHALES DONATES $130,000 TO SUPPORT CONSERVATION

Salmon received a boost as Prince of Whales donated $130,000 to PSF in support of the Marine Science Program, which is dedicated to the conservation of salmon and their marine habitats.

Climate change is a major factor influencing salmon survival. Global warming impacts ocean temperature, salinity, and food availability in the sea. And climate change also affects freshwater ecosystems — critical salmon habitat — with floods, late snowmelt, droughts, and fires.

Pacific salmon support more than 130 species — including orcas, bears, eagles and countless animals and plants — that are paramount to beautiful British Columbia's ecosystems.

"We all depend on salmon, including killer whale populations that draw tens of thousands of visitors to our region each year. We are at a critical time where species at risk need our help. On behalf of Prince of Whales, we are proud to partner with the Pacific Salmon Foundation to help drive research and action to help Pacific salmon populations recover," says, Alan McGillivray, President and Owner of Prince of Whales, Whale and Marine Wildlife Adventures.

Currently, only 73 Southern Resident killer whales remain in the Salish Sea. And Chinook salmon are a vital food source for killer whales. Eight populations of south coast Chinook are currently classified as endangered and four as threatened. Due in part to these declining populations, food shortages have become a prominent issue for killer whales and their survival.

Given the combined concerns surrounding the status of killer whales and widespread declines in salmon populations in B.C., Prince of Whales has stepped up to help advance the Pacific Salmon Foundation's research and habitat work in the marine environment.

The $130,000 donation will support Pacific Salmon Foundation's Marine Science Program, which leads research efforts and conservation initiatives specific to the environmental factors impacting salmon survival as they enter the ocean.

The gift will leverage and advance the international research conducted by PSF's Marine Science team and partners. A critical focus of their work highlights the importance of the first summer and winter of life in the ocean for salmon survival. Project work currently underway includes uncovering where and why salmon and forage fish are dying; restoring key kelp and eelgrass habitats; enhancing the resilience of coastal ecosystems; and visualizing ecological, environmental, and human impact data in the Strait of Georgia.

The contribution also advances research into cumulative impacts of climate change: ocean temperature, salinity, food availability, and the combined impacts of pathogens from open-net pen salmon farms.

"Chinook salmon comprise a significant portion of the Southern Resident killer whale diet in summer months. Many Chinook populations are trending downward in population numbers. A major portion of our work at the Pacific Salmon Foundation focuses on Chinook research, restoration and protection," says Michael Meneer, CEO and president, Pacific Salmon Foundation.

"The Pacific Salmon Foundation is thankful to Prince of Whales for their generosity and support, which will be deployed to prioritize restoration and enhancement initiatives to sustain salmon and their habitats. Salmon are resilient. With our support, they can recover, rebound, and thrive."

PSF thanks Prince of Whales for this gift as well as supporting our 2023 South Vancouver Island Gala and Vancouver Gala with leadership sponsorships, and live auction donations.

LOOK IN THE DIRECTION YOU WANT TO GO

GIFT SETS EMERGING SCIENTISTS UP FOR SUCCESS

Michael Martindale's motto in life was "look in the direction you want to go." In honour of his passing in 2020, his wife Sandra (Sandy) Martindale has established the Michael W Martindale and Sandra P Martindale Fund at the Pacific Salmon Foundation.

Michael's love of the outdoors, the ocean, and marine life began at an early age. Born and raised in Victoria, B.C., he was introduced to boating and maritime life by his adoptive father, Bob Young. Michael grew up fishing with his family on their various boats and at Schooner Cove, north of Nanaimo, as well as spending time at the beach near his home at Cadboro Bay. Furthering his education on salmon, long-time family friend Bill Cross introduced him to salmon conservation at the volunteer-led Goldstream Hatchery near Victoria.

"Michael was a wharf rat at the Royal Victoria Yacht Club and became a junior member at age 12," says Sandy Martindale, noting how he learned to sail and worked there during his teen years. While studying at Camosun College, Michael paid for his education by working on a small commercial fishing boat off the west coast of Vancouver Island.

After finishing school, he moved to Phoenix, Arizona to pursue a career in real estate development, and met Sandy in 1982. They married shortly thereafter, and Michael began sharing his passion for the ocean with her at once by embarking on a sailing honeymoon on his family's steel-hulled sailboat in the Gulf Islands. The trip included circumnavigating Salt Spring Island where they would later make their second home.

Together, Michael and Sandy spent as much time as possible sailing either near La Jolla, CA or Salt Spring Island, B.C., inviting their many friends to join on their adventures. He was particularly fascinated with whales in both California and B.C. From their home on Salt Spring, he would head out on his Boston whaler searching for resident or transient killer whales.

He loved whales, salmon, and the ocean equally, and recognized their interdependence.

Michael also helped organize local fishing derbies with proceeds coming to PSF. Learning about the work of PSF's science teams inspired Sandy to make a generous donation of $100,000 USD that establishes a special fund for university students to work on salmon-related topics.

Since PSF's inception, more than 45 post-secondary students have conducted studies with PSF's research teams.

Michael Martindale at the Royal Victoria Yacht Club.

Photo provided by Sandra Martindale

Pat Young with son Michael Martindale.

Photos provided by Pat Young

Michael Martindale's love for fishing started at about six-years-old when he began jigging for cod on the docks of local marinas.

Thanks to Sandy's vision of honouring Michael in a significant way, PSF will be able to attract more emerging "salmon champions" through funds that help enhance their education and contribute to salmon research at the same time.

"So much of this knowledge can be shared to help others," she says. "We are all in this together."

PSF welcomes further contributions to help grow this special fund. If you would like to contribute, please visit ***www.psf.ca/martindalefund*** or contact Margaret Buttner, manager, development at 604-664-7664 or ***mbuttner@psf.ca***

Conserving and restoring the natural habitats of wild Pacific salmon

Wheaton Precious Metals is proud to support the Pacific Salmon Foundation. Together, we are making a difference in preserving the salmon population for future generations through conservation, restoration and research.

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