SHUSWAP watershed council

ANNUAL REPORT

Photo credit: Shuswap Adventure Girl

APRIL 2024 — MARCH 2025

In this Annual Report you'll find the highlights of the SWC's work on:

- Water quality monitoring and research
- Water quality protection and improvement
- A wetland strategy for the Shuswap
- A water budget for the Salmon River
- Aquatic invasive species prevention
- Safe boating and swimming
- Communications, reporting and advocacy
- Council administration and governance
- Funding and expenditures

Message from the Chair

RHONA MARTIN Chair, Shuswap Watershed Council

Welcome to our 9th Annual Highlights Report. As I reflect on this year and the past 9 years for our Council, I am reminded that our work as a regional watershed organization is as important as ever. The Shuswap watershed is a very special place. However, it—and many other watersheds across the land known as British Columbia—faces threats posed by **climate change, fires, drought, pollution,** and **invasive species**. The SWC fulfills an important role of convening a variety of watershed interests to approach challenges collaboratively. I am pleased see the continued involvement of First Nations, regional and local governments, Provincial government agencies, scientists, the agriculture community, water monitors, and stewardship organizations in our Council.

I want to take a moment to highlight our **Water Quality Grant Program**, which we have offered for five years to take meaningful steps to protect and improve water quality in the Shuswap. Through the grant program, the SWC is supporting local farms to adopt new nutrient management practices that are good for the farm and for the environment. In five years, the SWC has invested $268,000 in water protection and leveraged an additional $393,000 for a total investment of over $660,000.

I would be remiss if I didn't draw attention to the significant threat that invasive **Zebra & Quagga Mussels** and whirling disease pose to our watershed, water quality and wildlife. These are not known to be present in the Shuswap watershed, and we must all **be diligent to prevent their spread from neighbouring watersheds.** Please, if you use or bring a boat or watercraft to BC, ensure you follow 'Clean-Drain-Dry' practices, pull your watercraft drainplug to travel, and stop for watercraft inspection on your travel route into or around BC.

Lastly, as we look to the year ahead, the SWC is entering a new chapter of funding. While confirmed contributions are lower than in past years, we are actively pursuing new opportunities. With the support of our staff at the Fraser Basin Council, **we're working to secure diverse funding sources to continue our important work.** We remain especially grateful to our long-standing partners—the Thompson-Nicola Regional District and Adams Lake Indian Band—and to the Canada Water Agency for their generous grant last year.

I encourage you to read our Annual Highlights Report to learn more. Please feel free to contact me, or our staff, if you have any questions or comments.

SHUSWAP watershed council

Who We Are

About the Shuswap Watershed Council

The SWC was established in 2014 as a watershed-based partnership of several organizations with an interest or responsibility for protecting water quality. There are up to 19 members that represent local governments, the Secwepemc Nation, Provincial government agencies, science and academia, and youth. The SWC is a collaborative, non-regulatory group that focuses on strategic initiatives to protect, maintain, and enhance water quality and promote safe recreation in the Shuswap.

Staff

The Fraser Basin Council, a BC non-profit non-government organization established in 1997, provides staff services to the Shuswap Watershed Council. There are two staff in FBC's Kamloops office that lead the SWC's programs and initiatives.

Our Vision

Enhanced water quality that supports human and ecosystem health and the local economy in the Shuswap watershed.

The SWC humbly acknowledges that its work takes place in Secwepemc'ulecw, the traditional unceded territory of the Secwepemc Peoples.

The Shuswap Watershed

The Shuswap watershed is a very special place. It is within Secwepemc'ulecw, the traditional unceded territory of the Secwepemc Peoples and the homeland of the Neskonlith, Skw'lax, Adams Lake, and Splatsin te Secwepemc First Nations. The Shuswap watershed —including Shuswap Lake, Mara Lake, Mabel Lake, Adams Lake, and many more lakes and rivers—is about 1.5 million hectares. Shuswap Lake itself is 310 square kilometres, with hundreds of kilometres of shorelines.

It is known for its pristine water and beautiful beaches. These attributes make the Shuswap one of the most popular recreation destinations in BC, and contribute to a desirable lifestyle for residents and a significant tourism economy. The Shuswap is a nursery watershed for four species of Pacific salmon, and provides important habitat for a variety of plants and wildlife. The Shuswap is a vitally important source of water for drinking for many communities and rural residents, and for agriculture.

Working together on water

The management and decision-making for water is complex, and many different governments and organizations have roles and responsibilities for monitoring, protecting, and reporting on water quality. The Shuswap Watershed Council convenes people and organizations to work on water quality together. Through collaboration we can build relationships, increase engagement, develop and deliver strategic projects, improve communication and advocacy, share and learn from each other, and achieve efficiencies and synergies—all for the betterment of the watershed.

Photo credit: Valerie Walsh

The watershed is our main priority

While the Shuswap boasts abundant, clean water in many parts of the watershed throughout the year, there are emerging concerns about the water quality and health of the ecosystem. **Nutrient and climate driven algal blooms** could impact our enjoyment of the lake, tourism, and the availability of clean drinking water. Additionally, there is an ongoing threat of **invasive zebra and quagga mussels** (ZQM) being introduced to BC from Eastern Canada or the USA. ZQM pose a serious threat to water quality, fish populations, and create significant economic risks by damaging infrastructure and waterbodies. Another threat to aquatic ecosystems, **whirling disease**, has been detected in Kootenay Lake in our neighbouring Columbia River watershed and could easily be spread to the Shuswap via contaminated watercraft or water equipment if we don't diligently practice prevention measures.

To address these concerns and threats, the SWC's role is to provide financial incentives for water quality protection and improvement; to support water quality monitoring and research to achieve a greater understanding of the watershed; to educate residents about best practices, stewardship and invasive species prevention; and to advocate for better protection of the Shuswap watershed.

In the following pages of our 2024–25 Annual Report, you can learn more about what the SWC has done to address these priority issues, and more, in the Shuswap watershed.

- **Protecting and improving water quality**
- **Water monitoring and research**
- **Educating and advocating for better protection against invasive mussels**
- **Promoting safe boating and recreation**

Water Quality Grants

2024 was the fifth year the SWC offered its **Water Quality Grant Program**. The grant program provides financial support to farms, stewardship groups, and landowners in the Shuswap watershed for projects that improve on-farm nutrient management, improve soil health, or restore wetlands and riparian areas. This helps protect and improve water quality in creeks, rivers, and downstream to Shuswap and Mara Lakes. By taking care of the landscape, we take care of water quality.

The SWC's grant program supports watershed restoration and targets a significant threat to water quality.

"The Shuswap has a rich agricultural heritage. Agriculture is a significant part of our regional economy, and it contributes greatly to local food security. The SWC is supporting local farms as they adopt new practices that protect our water quality."

—SWC Chair Rhona Martin

Five grants were awarded in 2024 worth a total of $55,203. The grant funding leveraged an additional $60,984 cash and in-kind contributions from the grant recipients for a total investment of $116,187 in new water quality protection projects.

5
grants awarded

$55,203
SWC funds toward better nutrient management and watershed restoration

$60,984
other funds and resources leveraged for better nutrient management and watershed restoration

1

Photo credit: James Clark

Sunnybrae Winery upgraded their vineyard irrigation system to fertigation which is an efficient method of nutrient application whereby fertilizers are injected via the irrigation system, resulting in greater nutrient uptake by the crop, greater water efficiency, and reduce groundwater contamination. The winery also made improvements to their white Dutch clover cover crop management, an agricultural practice that builds soil health and prevents erosion.

2

Photo credit: Joy DeVos

Foxtrot Dairy (Deep Creek) installed new fencing on-farm along Waby Creek to restrict livestock access to the creek, prevent manure deposition directly into the creek, and prevent erosion. The new fence protects a larger riparian area than the previous riparian fencing.

3

Photo credit: Scott Syme

Syme Farms (Salmon Valley) built a non-permeable slab for storing composting dry solid manure in conjunction with a pit to collect and contain leachate. Dry manure is no longer in contact with the ground, and any leachate created from rainfall drains into a collection reservoir and pumped into a storage pit.

4

Photo credit: Dan Gietema

Gietema Farms (Enderby) purchased and installed a Precision™ GPS on a tractor used for applying manure and fertilizer to croplands, achieving greater accuracy and efficiency, and reducing the risk of over-applying nutrients on-farm.

5

Photo credit: Jeff Czepil

Jeff and Kristy Czepil (Kingfisher) built new fencing on-farm adjacent to the riparian area of Kingfisher Creek to restrict livestock access to the creek, maintain riparian area vegetation, and prevent erosion.

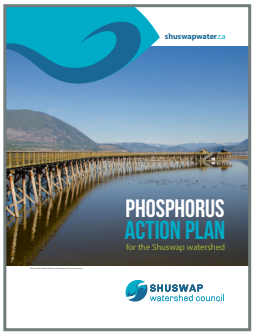
A wetland strategy for the Shuswap watershed

In 2023, the SWC began to develop a wetland strategy for the Shuswap watershed. Ultimately, a wetland strategy will help protect and improve water quality through policies and guidelines to conserve, manage and restore wetlands as vital components of a healthy watershed.

The wetland strategy focuses on the Salmon River and Salmon Arm Bay regions of the watershed. The first two phases of a multi-phased process to create the strategy were completed in 2023. This involved desk-top GIS data-gathering and analysis to gain an understanding of the current distribution and ecological functions of wetlands in the study area. In 2024–25, with funding from the Canada Water Agency, progress continued with the completion of field work by the consulting firm, McTavish Resource & Management, to verify the state of wetlands in the study area. All data gathered to-date has informed development of new recommendations for wetland restoration opportunities, as well as funding and partnership opportunities.

Did you know that wetlands:

- Hold and provide much of the world's freshwater
- Naturally filter pollutants and make water cleaner
- Provide fish, other food, and water for crops and livestock
- Support biodiversity—about 40% of the world's plant and animal species depend on wetlands
- Protect against storms and floods—a hectare of wetland can store up to 2.3 million litres of floodwater
- Capture CO2 from the atmosphere and store more carbon than any other ecosystem on Earth



We are all stewards of the watershed, and we can all play a part in protecting our water quality whether we are agriculturalists or silviculturists, building or maintaining roads, tending to parks, lawns and gardens, choosing household products and minding what we flush down our drains, properly maintaining septic systems, and more. Learn more in our Phosphorus Action Plan!

Find the Phosphorus Action Plan on the SWC website

Understanding water flows in the Salmon River watershed

A water budget for the Salmon River

The Salmon River and two underground water sources (aquifers) are vital for farming, homes, and businesses in the Shuswap. They also provide important habitat for salmon, especially during their late summer and fall spawning seasons which occur at a time when water shortages are increasingly common. These water systems are also culturally significant to the Secwepemc and Syilx First Nations.

To better understand how water moves through this area, the SWC partnered with the Province of BC, Splatsin te Secwepemc, and the consulting firm, Associated Environmental, to complete a detailed water budget. This 'budget' measures how much water comes into the system (such as rain and snow), how much leaves (such as rivers flowing downstream, or water extractions for domestic or agricultural purposes), and how much is stored underground in aquifers.

The study focused on the Salmon River between Falkland and Salmon Arm, and looked at how the river and aquifers interact under different weather conditions: wet, dry, and average years.

Key findings include:

- The river and underground aquifers are connected, meaning that water flows between them
- Groundwater levels rise in the spring with snow-melt, drop during the summer, and rise slightly again in winter
- Most water extraction in the study area comes from surface water, with groundwater use being relatively small
- During dry periods, the Salmon River runs a deficit meaning that more water is being used or lost than is gained
- There is limited long-term monitoring of ground-water, which makes it difficult to fully understand the Salmon River.

The water budget is an important tool for managing water use, especially when it comes to protecting salmon habitat and planning for dry years. It can help inform decisions about water licensing (a Provincial jurisdiction) and guide future actions to protect this critical resource.

The SWC is grateful to the Canada Water Agency for funding that supported progress on the wetland strategy and the Salmon River water budget.

Photo credit: Samantha Cooper

Safe boating and recreation

The Shuswap is a wonderful watery playground ideal for thrilling water sports, house boating, fishing, swimming, playing on the beach, and self-propelled activities such as kayaking and paddle-boarding. The SWC wants everyone in the Shuswap to be safe on and near the water. Throughout spring and summer, the SWC shared messages encouraging recreationists to play safely. Additionally, the SWC partnered with the **Royal Canadian Marine Search & Rescue**, Station 106 Shuswap (based in Sicamous) to promote the availability of **free lifejacket loans for children** and life ring stations at several locations throughout the Shuswap.

Here is a summary of SWC safety campaigns in 2024:

12
social media campaigns
with over
29,000
impressions

19
print campaigns
with over
167,000
impressions

9
radio campaigns
with up to
400,000
impressions

8 TIPS for Having Fun and Staying Safe in the Shuswap

1. Whether boating, floating, paddling, or SUPing always **wear a lifejacket**.
2. **Have a sober skipper!** Never boat under the influence of drugs or alcohol.
3. Be prepared. Check your **pre-departure checklist.**
4. **Be extra safe in cold water** —it can disable you from resurfacing.
5. Always use a **spotter for tow sports.**
6. Watch for **floating and partially submerged debris.**
7. Watch—don't just listen—for trouble in the water. **Don't be distracted while supervising children.**
8. Always **swim with a friend** —it's safer than swimming alone.

20
lifejacket loaner kiosks

Kids Don't Float—but PFDs do!

There are 20 lifejacket loaner kiosks around the Shuswap in the spring and summer months, equipped with child-sized lifejackets to borrow for free on the honour system. The kiosks are provided by the Royal Canadian Marine Search and Rescue, Station 106 Shuswap, with support from several community sponsors. The SWC has proudly sponsored the installation of three kiosks.

Borrow a lifejacket for a child from a lifejacket loaner kiosk such as this one located at Sicamous Public Beach.

ROYAL CANADIAN MARINE SEARCH & RESCUE
Saving Lives on the Water
Station 106 • Shuswap

Preventing the spread of invasive Zebra and Quagga mussels

The Shuswap Watershed Council partnered with the Columbia Shuswap Invasive Species Society (CSISS) to monitor the Shuswap watershed for invasive zebra and quagga mussels (ZQM) from spring to fall. This **early detection monitoring program** is critical to ensure that the Shuswap watershed is still invasive mussel-free.

Additionally, the SWC delivered educational campaigns to residents and visitors about preventing the spread of ZQM. These campaigns focus on the importance of **watercraft inspection** for travellers and **Clean-Drain-Dry** practices for all watercraft users. The SWC delivered these campaigns through the news and travel literature, print media, social media, and signage.

97 samples collected and tested for the presence of zebra and quagga mussels

12 sites on 6 waterbodies were repeatedly monitored in 2024

The SWC's educational campaigns had:

970,000 impressions in the news and in travel literature

150,000 impressions on radio listeners

Over **3.2 million** impressions on travellers through billboards

91,000 impressions on social media

Erin (staff, Shuswap Watershed Council) is pictured at a monitoring site (Pierre's Point) on Shuswap Lake. She is holding a phytoplankton net which would capture microscopic mussel larvae if they were present at this site. Samples are collected according to a Provincial protocol and then sent to a laboratory for analysis.

Why should we care about Zebra and Quagga Mussels?

There are no known infestations of ZQM in BC. If they invade BC there will be many devastating impacts to the lakes, our enjoyment of them, water quality, and precious aquatic ecosystems. The cost to manage ZQM infestations in BC would be up to $129 million per year.

The Shuswap needs your help!

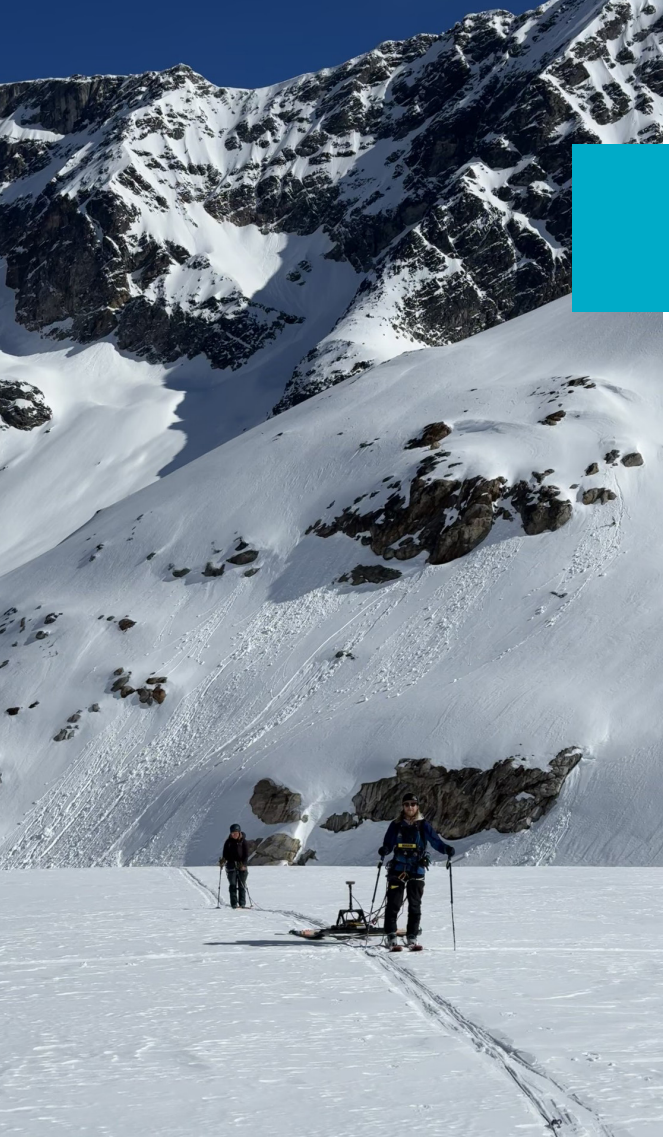
Lakes in the Shuswap—and all of British Columbia—remain invasive mussel-free. We all must be diligent to prevent the spread of invasive mussels to BC.

Here's what you need to do:

- **Clean, drain, and dry** your boat or watercraft and gear when remove it from the water
- **Pull your watercraft drainplug** when you travel on BC roads
- Stop for **watercraft inspection** along your travel route into or around BC
- Don't use invasive species for bait
- **Never release** aquarium contents (plants, animals, or water) into the environment
- **Report invasive species** – for suspected zebra and quagga mussels, phone the Provincial RAPP hotline immediately (1-877-952-7277) and for all other invasive species use the **Report Invasives BC app.**

RAPP
Report All Poachers and Polluters
Conservation Officer 24-Hr Hotline:
1-877-952-RAPP (7277)
rapp.bc.ca

IAS



A member of the TRU research team and equipment at Gold Peak Glacier in the headwaters of the Adams River. Photo Credit: Tay Powrie

Watershed research

Adams River headwaters glacier research

In 2023 and 2024, the SWC partnered with a research team from Thompson Rivers University (TRU) to research the effects of climate change on glaciers and local hydrology within the Adams River sub-basin. The Adams River is a large tributary to Shuswap Lake. It is important for fish habitat and domestic water, and it has a significant influence on the water quality of the lake. Glaciated mountains in the upper reaches of the river supply source water to the Adams River.

The research project was the first of its kind in the Shuswap watershed. Results show that glacial coverage in the Adams River watershed is declining and that the hydrological regime may be shifting. The contribution of glacier ice melt to the Adams River has increased over the past century. Modelling suggests that in the future, the contribution of glacier ice melt to the river will decrease over time, and that seasonal flows in the river (May to September) could also decrease. Furthermore, the temperature and turbidity could change, which will have implications for fish and the aquatic ecosystem. The research team recommended ongoing monitoring of the Adams River, and that watershed management ensures suitable habitat for native and migratory fish; that forestry practices allow snow retention in high elevation forests; and managing water allocations in late summer months to account for potentially reduced flows during this period in the future. A full Master's thesis report will be published by graduate student Tay Powrie later this year.

Floating Treatment Wetlands in the Salmon River

In 2024 the SWC partnered with graduate student Margot Webster, Royal Roads University, to research how 'floating treatment wetlands' (FTWs) may help to improve water quality in the Salmon River. Earlier studies have shown that the river carries a significant load of phosphorus and other nutrients to the lake which have contributed to nuisance algal blooms in Salmon Arm Bay.

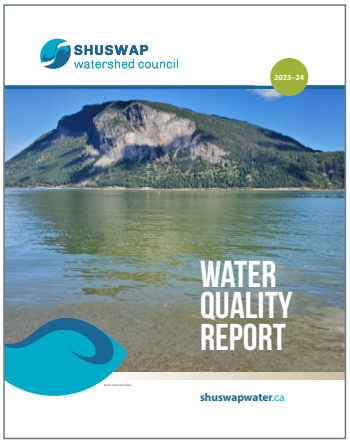
FTWs are a nature-based solution that can improve water quality by absorbing nutrients and contaminants from a waterbody. They are simple, low-cost, and can have many ecological benefits. Ms. Webster built several FTWs each consisting of a small wooden frame and three species of aquatic plants. The FTWs were deployed into the lower Salmon River for the field season, spring to fall. Ms. Webster monitored water quality and analyzed plant tissue samples from the FTWs to determine how much nutrients the FTWs took up from the water. Her research results showed changes to water quality for orthophosphate (a form of the nutrient phosphorus) and dissolved oxygen, and other parameters. The aquatic plants removed the most nutrients from the water in early summer. A full Master's thesis research report will be published by Margot Webster later this year.

Floating treatment wetlands in the lower Salmon River. The aquatic plants take up nutrients and contaminants out of the river water. Photo credit: Margot Webster

Photo credit: Valerie Walsh

Communications and advocacy

shuswapwater.ca



Throughout the year, the SWC publishes various communiqués about its work, accomplishments, decisions and expenditures. It also strives to engage Shuswap residents and visitors in important issues and announcements relevant to the Shuswap watershed. These communiqués include:

- Publication of the SWC's seventh annual water quality report, the **2023–24 Shuswap Water Quality Summary**
- SWC Meeting Highlights Summaries
- Media releases
- The SWC maintains an informative **website** and an active presence on **social media**

Follow us and stay up to date with our work!

Local voices for local issues

Nobody cherishes the Shuswap more than locals do. That is why the SWC—a collaborative partnership of people who live, work and play in the Shuswap—plays an important role as an advocate for the Shuswap. Over the past several years, the SWC has urged regional, provincial and federal authorities to take further action and allocate more resources to ensure the long-term well-being of the Shuswap watershed.

Recently, the SWC has focused its advocacy efforts on priority aquatic invasive species, including invasive Zebra and Quagga Mussels, and Whirling Disease, which aren't known to be present in the Shuswap watershed. As a critical part of prevention, the SWC has recommended that the Province of BC establish more **watercraft inspection and decontamination stations** at entry-points to BC and that they operate 24 hours/day. Watercraft inspection is the first line of defence against aquatic invasive species 'hitching' a ride into BC on boats and watercraft from out-of-province.

Community water monitoring

In 2024, the SWC introduced a community water monitoring grants program. Small grants (up to $3000) were available to community and stewardship groups. The SWC was pleased to provide grants to **Gardom Lake Stewardship Society** and **White Lake Residents Association** to support water quality monitoring by volunteers and the purchase of supplies and equipment.

Administration and Expenses

Photo credit: Darren Robinson Photography

2024–25 Budget

(April 1st 2024–March 31st 2025)

Contributor	Amount ($)
2023–24 operational surplus (carried forward from March 31st, 2024)	25,113
2023–24 funds allocated and carried forward to 2024–25 projects[1]	59,961
Local government and First Nations:	
Columbia Shuswap Regional District (Areas C, D, E, F, G and the District of Sicamous)	0
Thompson-Nicola Regional District	53,600
City of Salmon Arm	0
Adams Lake Indian Band	1300
Federal grant funding:	
Canada Water Agency	153,765
Reserve funds:	
Operating Reserve balance from March 31st, 2024	174,987
Total Funding	**468,726**

Program Expenses	Budgeted ($)	Expenses ($)	Variance ($)
Water Quality Monitoring Program	111,784	109,753	2031
Water Quality Protection Program[2]	205,634	143,856	61,777
Zebra & Quagga Mussel Prevention Program	34,857	35,349	-492
Safe Recreation Program	13,193	12,039	1154
Communications & Advocacy	19,488	23,351	-3863
Management & Administration	64,631	60,319	4312
Sub-total operational expenses	**449,586**	**384,667**	**64,918**
Surplus	19,140	0	19,140
Summary of expenses	**468,726**	**384,667**	**84,058**

1 The Water Quality Protection Program often ends the year with a surplus due to funds that have been approved for spending but not carried out until the following year. $59,961 were carried forward from March 31st 2024, dedicated to projects that were completed in 2024–25. Also see note #2.

2 Of the $61,777 surplus in the Water Quality Protection Program as of March 31st 2025, $34,646 is allocated to projects that will be completed in 2025–26.

Council Membership

—as at March 31, 2025

Chair:
Rhona Martin
Community Representative

Vice Chair:
Director Stephen Karpuk
Thompson-Nicola Regional District, City of Kamloops

Council Members:

Director David Lepsoe
Thompson-Nicola Regional District, Village of Chase

Councillor Pam Beech
District of Sicamous

Tk'wemi'ple7 (Councillor) Cliff Arnouse
Adams Lake Indian Band

Robyn Laubman
Splatsin te Secwepemc

Director Brian Schreiner
Regional District of North Okanagan, City of Enderby

Diane Sutherland
BC Ministry of Environment & Parks

Vacant
BC Ministry of Agriculture & Food

Jeff Nitychoruk
BC Ministry of Water, Land & Resource Stewardship

Erik Kok
Community Representative

Kimm Magill-Hofmann
Community Representative

Phil Owen
Agriculture Representative

Megan Ludwig
Science and research advisor

Daniel Selbie
Science and research advisor