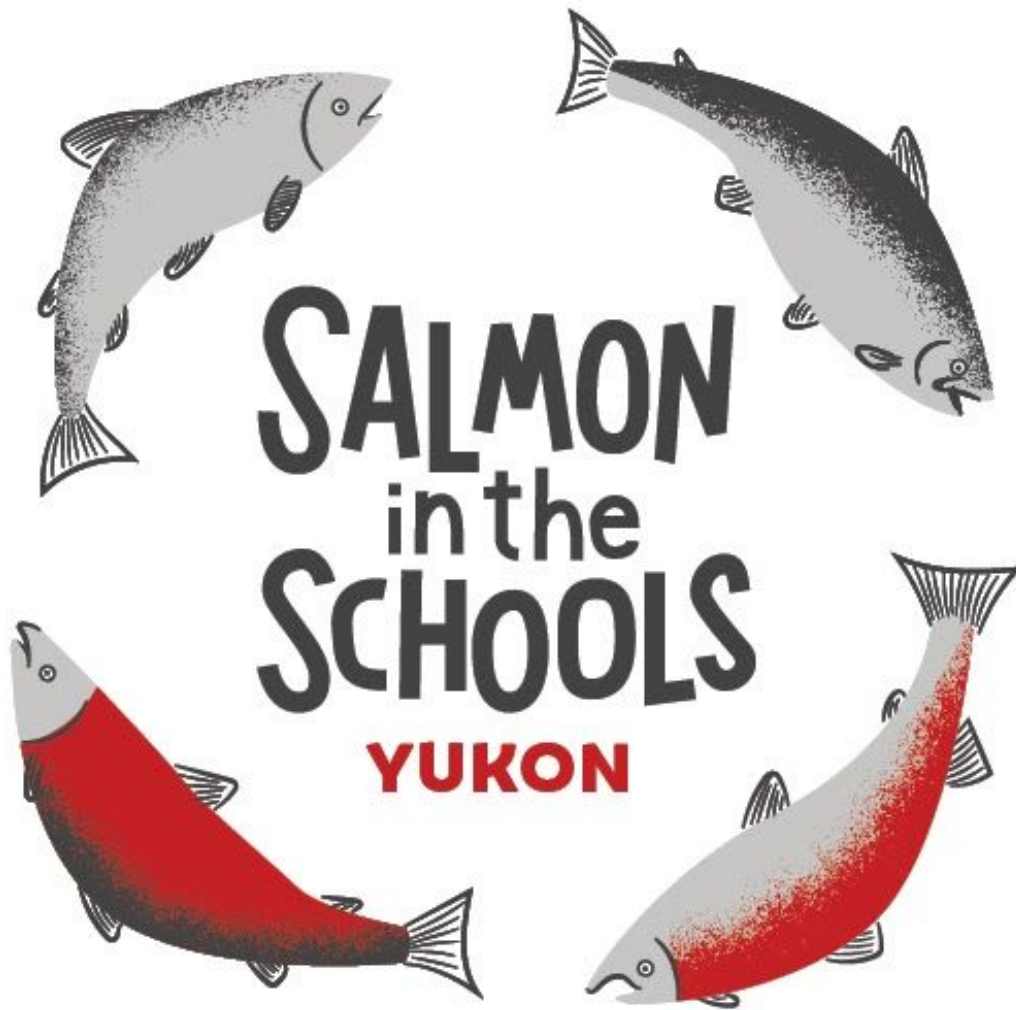


FINAL REPORT

Salmon in the Schools

2019-2020



[Introduction](#)

[Reviewing & Revisions](#)

[Curriculum Launch](#)

[Educator Training Day](#)

[Overview of Weaving Salmon Connections Day](#)

[Branding and Design](#)

[Communications and Planning](#)

[Press Release](#)

[Media Coverage](#)

[Facilitation Day Plan](#)

[Community Collaborations & Support](#)

[Yukon Teachers Association & Yukon Education](#)

[Big Fish Little Fish](#)

[Kwanlin Dun First Nation / Carcross Tagish / Ta'an](#)

[Sebastian Jones](#)

[Financial Spending](#)

[Labour - Wages & Salaries](#)

[Site/Project Costs](#)

[Overhead/Indirect Costs](#)

[Appendix I: Web Assets](#)

[Appendix II: Yukon Salmon Write-up](#)

[Appendix III: Yukon River Watershed Map](#)

[Appendix IV: Updated Educator's Guidebook](#)

Introduction

For the 2019-2020 year, our focus for Salmon in the Schools was on the revision and adaptations of educational resources that we created in the 2018-2019 year, organizing and hosting large educator's training day in February 2020, and officially launching the curriculum guidebooks that we developed.

This is the third successful year of operating the Salmon in the Schools program across the Yukon. Here is some of the history of the Salmon in the Schools program.

In 2017-2018, we piloted the program and traveled to 10 communities across the territory delivering and adapting new salmon programming we created.

In 2018-2019, we continued with school visits and invested resources to develop the educator's guidebook (working with a design team), and rebrand the look and feel of the program.

In 2019-2020, we revised, edited and reprinted the guidebook, planned and executed an educator's training day in collaboration with local salmon partners, and officially launched the new curriculum.



Reviewing & Revisions

One of the main focuses this year was reviewing and revising the Educator's Guidebook that we developed in the 2018-2019 year. There were some major edits, new additions and language inclusion that were needed. We asked a variety of people to review, and we were able to work with Jenn Redvers, Jesse Jewel at the Department of Education and the Council for Yukon First Nations and Yukon Native Language Education Centre to provide more feedback on the design, content and language in the manual. We also received reviews and input from KDFN and CAFN through a collaborative process.

Some of the edits included:

- adding in words and phrases in Yukon First Nations languages,
- reviewing for cultural connections and additions,
- correcting grammatical errors
- ensuring consistency in new assessment models
- reviewing for educational re-formatting

Curriculum Launch

We officially launched the curriculum on Feb 3, 2020. Before that, some copies went out through the Department of Fisheries and Oceans, through their work with the Stream to Sea tank programs. The Department of Fisheries and Ocean assisted us in distributing guidebooks across the territory and to teachers who requested more support for using the Stream to Sea program. We gave away rack cards, links, business cards, and promoted the resource through social media channels, e-mail and web.

We soft-launched the curriculum through our online platforms after finishing the first go at our content in spring 2019. This was very successful, as we received significant amounts of positive feedback from local educators interested in using the program in their schools. We have been in communication with some of these educators since, and this year we were able to more deeply support their learning through a full day educator's training day in February. We were able to give each educator a copy of the Guidebook, and some received large laminated Yukon Watershed maps which we'd printed.



Educator Training Day

The training day ran on February 3, 2020 at the Kwanlin Dun Cultural Centre. We had 25 educators in attendance from across the territory. We had representation from the following:

- Teachers from Whitehorse
 - Ecole Emilie Tremblay, Whitehorse Elementary School, Hidden Valley Elementary School, Golden Horn Elementary School, Takhini Elementary School
- Teachers from across the Yukon
 - Robert Service School in Dawson City, Ghùch Tlâ Community School in Carcross
- Education Support Workers - Whitehorse and Carcross
- Whitehorse Youth Achievement Centre Staff
- Department of Fisheries and Oceans Staff



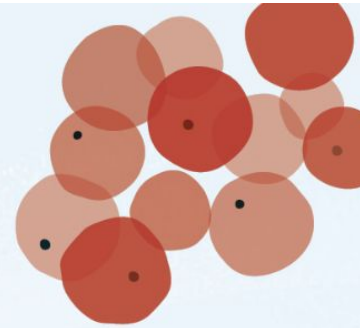
EDUCATORS TRAINING

Salmon belong in the classroom!

You are invited to attend a one-day educator's training session to launch the Salmon in the Schools curriculum resource. Rivers to Ridges is offering an indoor/outdoor training session exploring the activities in the curriculum and supporting teachers to invite salmon education into their classroom.

During the day, you can expect to participate in outdoor activities, explore design and assessment tools, and network with other teachers and local salmon stewards/enthusiasts while learning more about the importance of salmon in our ecosystem. The curriculum was developed from 2017-2019 by Rivers to Ridges with the support of the Yukon River Panel Restoration & Enhancement Fund and the Pacific Salmon Commission.

This training is free. Lunch and refreshments will be provided.



RSVP is required.

- To RSVP and for more information contact **Emily Payne** at emily@riverstoridges.org or 867.334.8955

**FEB 3
2020
9AM-
3PM
KDCC**

YTA Members may apply under Professional Development a minimum of 14 days before the event.

YTA.yk.ca



Overview of Weaving Salmon Connections Day



Branding and Design

We continued our work with Jenn Edwards from Spruce Tip Design to help brand the event and graphically design some images for the event. She updated the website (see screenshots in [Appendix 1](#)) and supported the development of graphics for web, social media and press releases. See sample below:



Communications and Planning

We worked closely with Shannon Bower to support event planning and design for the Educator's Training. She was instrumental in helping the event come together, and supported many aspects of the event, including:

- Booking and coordinating the venue
- Organizing all the food and beverages for the event
- Writing Yukon additions for the resource guide
- Budgeting support and cost estimates
- Regular meetings for several months leading up to the event
- Planning and coordination of additional materials and supplies needed for the event

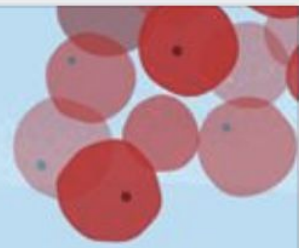
We were also in close communication with the Professional Development Department at the Yukon Teachers Association, as they were very supportive of us offering this opportunity. They were able to promote this event through their channels, and supported some teachers to attend.

We promoted the Educators' Training event through Facebook, DFO, YTA, Dept of Ed, etc.



WEAVING SALMON
connections

EDUCATORS TRAINING
Salmon belong in the classroom!



FEB 3
2020
9AM-
3PM
KDCC



FEB
3

Educators Training - Weaving Salmon Connections

Public · Hosted by Rivers to Ridges

✓ Going ▾



Details

Salmon belong in the classroom!

You are invited to attend a one-day educator's training session to launch the Salmon in the Schools curriculum resource. Rivers to Ridges is offering an indoor/outdoor training session exploring the activities in the curriculum and supporting educators to invite salmon education into their learning environments.

During the training, expect to:

- learn indoor (and outdoor) salmon-based activities to facilitate with young people
- receive a copy of the educator's guide book
- explore the importance of salmon in the Yukon through story and lessons
- visit and connect with KDFN & C/TFN & TKC salmon enthusiasts, who are meeting to gather their perspectives on salmon (an event happening alongside this training)
- collaborate with other educators and salmon stakeholders

We will also have some large maps of the Yukon River Watershed designed by the Yukon Salmon Sub-Committee available for your classroom or learning environment.

Funding for attendance is available for:

- travel from Yukon communities
- the financial expense of a substitute teacher

This training is free of charge. Lunch and refreshments will be provided.

Please RSVP if you haven't already.

For any inquiries regarding the event, please contact Emily at 867.334.8955 or emily@riverstoridges.org

Visit salmonintheschools.com for more information.

This event is YTA approved.

The curriculum was developed from 2017-2019 by Rivers to Ridges and Big Fish Little Fish Consulting with the support of the Yukon River Panel Restoration & Enhancement Fund and the Pacific Salmon Commission.

Press Release

Below is the press release for February 3rd, 2020.



For Immediate Release
2020

February 3,

Southern Lakes First Nations and Yukon Educators Weaving Salmon Connections

Media Contacts

Whitehorse, Yukon Territory

Weaving Salmon Connections brings the Kwanlin Dün and Carcross/Tagish First Nations and Yukon Educators together in learning, sharing and celebrating salmon event being held from 9am to 3pm, February 3rd, at the Kwanlin Dün Cultural Centre.

We are salmon people! Over the course of two years, the Kwanlin Dün First Nation (KDFN) and Carcross/Tagish First Nation (C/TFN) governments are developing a community-based salmon plan with the support from the Yukon River Panel's Restoration and Enhancement Fund.

Yukon River Chinook salmon in the southern lakes have always been an essential part of the culture and livelihoods of First Nations people. This relationship to salmon has changed over time given major impacts like the Whitehorse Dam. The Kwanlin Dün First Nation and Carcross/Tagish First Nation, with support from the Ta'an Kwäch'än Council (TKC) are meeting with a group of citizens from three governments to share what has been done to date, review big themes and ideas, and gather their perspectives on salmon.

Brandy Mayes, Operations Manager for Heritage, Lands and Natural Resources for the KDFN states "our people were always connected to salmon. The southern lakes and places like Whitehorse, Michie Creek or McClintock River served as incredible gathering places

because of the salmon fishing that once took place there. It is important that the plan gather citizen perspectives, values and priorities in order to move forward". This event will help shape this very important plan for the Chinook salmon that return now and for future generations.

Salmon also belong in the classroom! In conjunction with the southern lakes salmon planning event, outdoor and land-based education organization Rivers to Ridges is conducting a one-day educator's training session to launch the new Salmon in the Schools curriculum resource. This portion of the event includes an indoor/outdoor training session exploring the activities in the curriculum and supporting teachers to invite salmon education into their classroom. Participants will network with other teachers and local salmon enthusiasts while learning more about the importance of salmon in our ecosystem. Emily Payne, co-founding director of Rivers to Ridges states: "we are looking forward to getting our salmon curriculum in the hands of educators. Our curriculum brings together indigenous perspectives, outdoor-centred learning, sharing and empathy, all of which are conveyed through these incredible fish". The curriculum was developed over the past few years with the support of the Yukon River Panel Restoration & Enhancement Fund and the Pacific Salmon Commission.

Dennis Zimmermann, a local consultant facilitating this planning effort with the KDFN and C/TFN and a contributor to the Salmon in the Schools curriculum sees bringing these two elements, planning and education together as a natural fit. He states "weaving salmon connections is a way to demonstrate that salmon bring us all together. Maintaining a connection to salmon through events like this is so important especially when we are all conserving in order to maintain these runs".

The Salmon in the Schools curriculum can be seen and downloaded at: <https://salmonintheschools.com/>. The Southern Lakes salmon planning initiative is a two year partnership with the KDFN and C/TFN. The TKC are supporting the initiative and will be full partners next year.

Contact:

Brandy Mayes – Kwanlin Dun First Nation – 867-633-7800 x.144 – brandy.mayes@kdfn.net

Karlie Knight and Coralee Johns – Carcross/Tagish First Nation – 867-821-4251
-karlie.knight@ctfn.ca or coralee.johns@ctfn.ca

Dennis Zimmermann – Project Facilitator – 867-336-3474 – bflfyukon@gmail.com

Emily Payne – Rivers to Ridges – 867-334-8955 – Emily@riverstoridges.org

###

Media Coverage

We received both audio and video coverage for the event, which can be found at request at CBC North.

Facilitation Day Plan

The event ran on February 3rd, 2020.

Our team for the Educator's Training was: Rosalind Crump, Erin Nicolardi, Jenn Redvers, Emily Payne, Shannon Bower, Dennis Zimmerman. Below is the event day plan:

Weaving Salmon Connections - Educator's Training Monday, February 3rd

Time	What's on?	Facilitating	Location	Supplies
9 - 940	Coffee & Tea Name Tags Opening Gratitude Circle Names, position, interest in attending, connection to salmon Overview of Day Plan Explain our flow, question wall, teaching approach, emphasize this training day is for them	Erin lead (take notes re: what people want to get out of it)	LH	Talking Piece Name Tags
940 - 1030	Icebreaker in small group Rivers to Ridges Approach & Organizational Overview -What do we do!? -mentoring, land-based,	Erin Erin	MPR	Post-its Salmon printouts Scissors Colouring Stuff Baskets Sticky Notes Markers

	<p>inquiry-based, fostering empathy & wonder, reconciliation, outdoors</p> <p>History of SIS -Overview of History -Funders & Supporters</p> <p>Stream to Sea Program Overview & Connections</p> <p>*Get up and Write* What are some important philosophies that guide your own teaching practice? Write-up on our wall, then wander around to read others'. Discuss.</p> <p>"What's your Salmon Story" w/ prompts & pre-made cutouts</p>	<p>Erin first half / Em second half</p> <p>Nick</p> <p>Em</p> <p>*Note* We do this activity as a way to approach how we teach, before diving into content</p> <p>Em</p>		
1030 - 1050	<p>Snack Break</p> <p>Rollover from Salmon Story</p> <p>Exploring Resources</p> <p>Meet other Educators</p> <p>Add to the Question Wall</p>		MPR	Salmon printouts
1050 - 1145	<p>Guidebook Exploration Highlight Activities & flip through (pass out guidebook)</p> <p>Web of Life (all together)</p>	<p>Em</p> <p>&</p> <p>Erin</p>	MPR	<p>Web of Life String Ecosystem Cards</p> <p>Mapping Maps</p>

	<p>Creatures in ecosystem Adapted to bring in personal connection to salmon</p> <p>Mapping Exercise (divide the group in two if big group)</p>			<p>Wooden Blocks Animal Figures Whiteboard Markers Small people</p>
1145 - 12	<p>Short Integration Activity</p> <p>-Brief Overview of Guidebook for all salmon folks</p> <p>Play Guard the Redd as integrative game with some adaptations</p>	Emily lead / Erin support	LH	<p>Hackysacks Rope (boundary)</p>
12 - 1	<p>Lunchtime & Collab & Presentations Presentations (one from each nation)</p>	Dennis	LH	
1 - 145	<p>Salmon Story: Mouldy Head</p> <p>Collab time re: Salmon Practices</p> <p>-What are we doing already in our educational spaces as it relates to salmon?</p> <p>-How can we best incorporate First Nations Ways of Knowing & Doing into our pedagogical spaces?</p> <p>-Are there other important questions that emerge from</p>	<p>Pam Joe</p> <p>Emily & Erin/Jenn support</p>	MPR	<p>Paper for walls Markers Sticky Notes</p>

	the group?			
145 - 215	<p>Outdoor Activities (whether and gear dependant)</p> <p>Salmon Tails</p> <p>Salmon Swim Home</p>	Erin lead Salmon Tails	Outside	Tails or Bandanas
215 - 230	<p>Break & Snack</p> <p>Peruse resources</p> <p>Collab with others</p> <p>Salmon Story Cut-out</p>		MPR	
230 - 245	<p>Salmon Sharing & Visual Takeaways</p> <p>Walk the room. Take notes. Then gather again.</p> <p>How would you adapt what you are currently doing in your learning spaces after today?</p>	Erin	MPR	
245 - 3	<p>Closing Circle</p> <p>Reminder that our own personal connection we shared earlier might be the most important window in with our learners.</p> <p>A draw for those that completed the salmon cut-out.</p> <p>Don't forget take-homes: maps, chum, guidebooks, R2R bandanas, PSF shirts, SIS sweatshirt, R2R stickers</p>	Emily	LH or MPR	

Set-up:

- Drop off Chum to Kitchen in the morning & give 20 to Dennis as gifts
- Big blue waves (cut-out and adhere to the wall) as a river
- Resource Table (with books, stories, etc.)
- Write-up Day Plan in a visual spot
- Set-up Question Wall
- Layout gravel (white bucket of rocks)
- Put out puppets & touch items
- Prep circle and salmon story cut-out stations

Community Collaborations & Support

Yukon Teachers Association & Yukon Education

To help make this event happen, we worked with Christian Berneche from the Yukon Teachers Association (YTA). This was a YTA sponsored event, and they were able to help support promotion through their outreach channels.

We also had the support of Yukon Education, who helped in reviewing the handbook and planned to be there in attendance on the training day (which was not possible due to illness.)

Big Fish Little Fish

We collaborated with Dennis Zimmerman of Big Fish Little Fish Consulting to create a larger-scale event around salmon that supported both of our projects. He ran his consultation with local First Nation partners alongside ours, and we collaborated to have our opening prayer, lunch, and closing circle together with his group of folks. This really enhanced our offerings and gave the educators meaningful time to mingle with other people interested salmon.

Kwanlin Dun First Nation / Carcross Tagish / Ta'an

We met with local First Nation partners that wanted to help support the educator's training day and the release of the resource in advance of the event.

Sebastian Jones

We worked with Sebastian to help support some Elder gifts at the event. We purchased Chum Salmon from Dawson through him, and this was brought down to Whitehorse. The Chum salmon was brought to Stacey's Butcher for processing, brining and cold smoking. It was packed, and gifted to Elders during the Weaving Salmon Connections day, as well as shared during afternoon snack time.

Financial Spending

Please see attached budget for detailed numbers. A few of the categories that we spent in shifted slightly. This was due to a few of the following factors:

- Collaboration with Big Fish Little Fish Consulting (Dennis Zimmerman) to put together the event with both the educator component and First Nation consultation session. We wound up cost-sharing some of the large pieces for the production of the event, which led to some categorical changes in the budget.
- Our team's focus on planning for the event and communicating with designers, supporters, and making guidebook changes meant that we did not spend as much time as expected delivering programming on the ground.
- We had additional parties support certain aspects of the training event (Yukon Teachers Association), which we did not anticipate, so this changed the way that we allocated our budget.

Labour - Wages & Salaries

Due to the nature of this planning for this large event and editing the guidebook, we focused our efforts more on this, and less than planned on school visits as originally intended. Dollars from the *Education and School visits* line item were moved into *Communication and Event Planning*. The event required a large amount of coordination and planning, which were a priority this year for us rather than traveling the territory for school visits. For *local instructors/Elders*, we ended up working with Pat Joe, who was already an attendee with the consultations next door. While we were intending on providing funds, her time was already covered from her attendance at the event. These fees covered our staff and additional support for project review time. Overall, we spent \$1032 less than expected on Labour and Wages. Under *Subcontractors & Consultants*, we spent less than expected because our Event Coordinator's costs were shared with Big Fish Little Fish Consultants.

Site/Project Costs

Travel cost was much less than anticipated, as we did not get many teachers from outside of Whitehorse who were able to attend the training day (\$1060 instead of \$3000). Moreover, the Yukon Teachers Association agreed to cover some of the transportation and substitute teacher requirements, which we had originally intended to pay for. *Site supplies and materials* were higher than anticipated, as we underestimated the cost of the full rental of KDFN, in addition to providing snacks, lunch and beverages for everyone in attendance. *Other site costs*, which was the purchase and smoking of the Dawson chum for Elders was just slightly over our original budget of \$500. Altogether, the total category heading of *Site/Project Costs* was \$141.95 more than originally budgeted for.

Overhead/Indirect Costs

Photocopies and printing were higher than expected, costing us a total of \$1055, rather than the planned \$820. We ended up printing extra copies of the Educator's Guidebook which were given to citizens of KDFN, CTFN and TKC who attended the planning session in the neighbouring room.

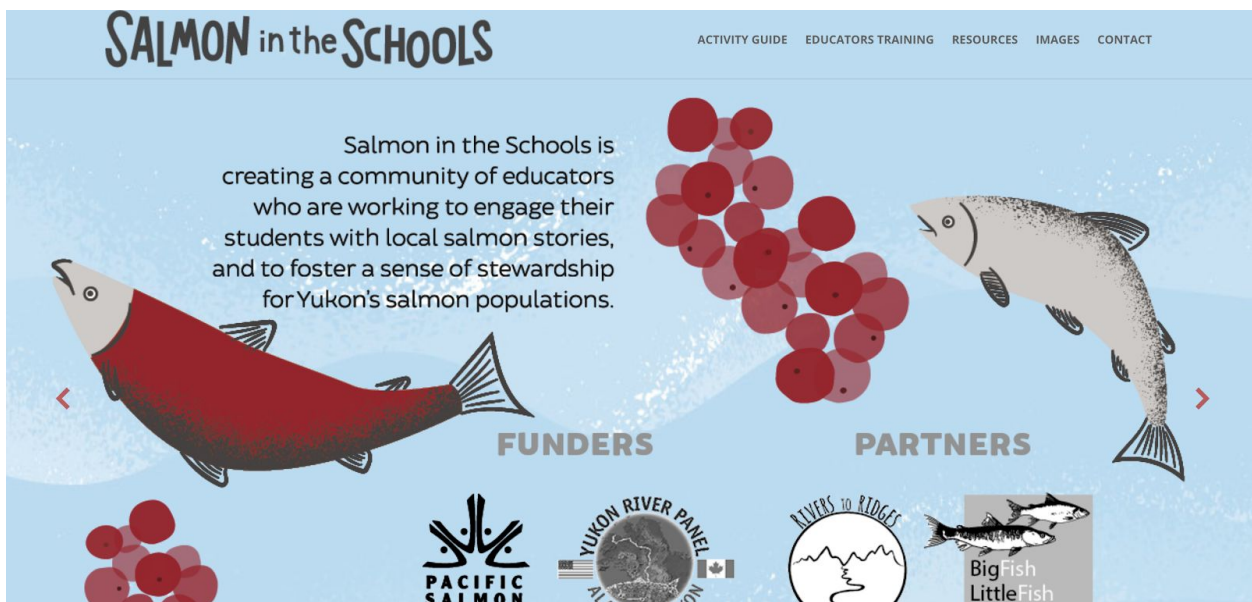
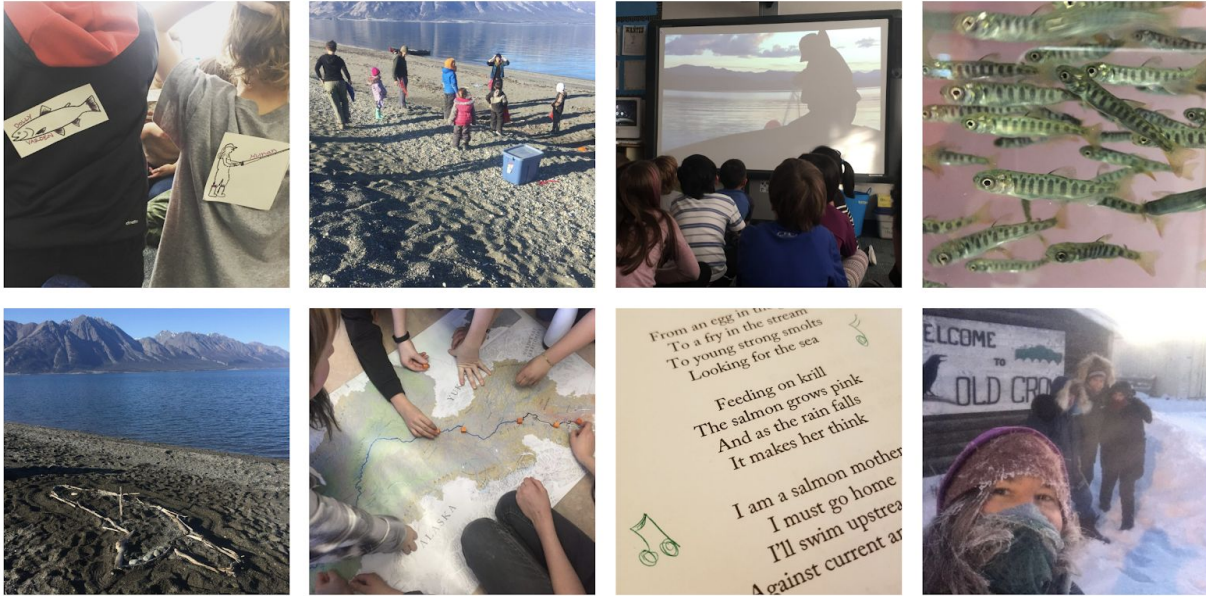
Our *administrative holdback* for this project was 15% (\$4500). We state that we have \$1860.05 left unspent from the allocated budget. Therefore, we would like to request only \$2639.95 of the admin holdback. Because there were costs that were shared between Big Fish Little Fish and Rivers to Ridges, and some expenses covered by additional parties, we wound up spending less than estimated during this fiscal period.

Appendix I: Web Assets

All of the screenshots were taken from www.salmonintheschools.com. Much of this content was updated, changed and adapted for the 2019-2020 year.

SALMON in the SCHOOLS

ACTIVITY GUIDE EDUCATORS TRAINING RESOURCES IMAGES CONTACT



Games, Activities & Songs

- [The Salmon Game](#)
- [Hooks and Ladders \(similar\)](#)
- [Salmon Circle Song](#)
- [Salmon Song](#)
- [Salmon Wild](#)
- [Obstacle Course](#)
- [My Seasonal Round - OpenSchoolBC](#)
- [You Could Be a Salmon song \(Black Spruce Bog\)](#)

Online

- [Amy Gulick's Salmon in the Trees](#)
- [Salmon in the Classroom, Alaska Department of Fish and Game](#)
- [Alaska Seas and Watersheds - A Salmon's Life Journey](#)
- [Alaska Seas and Watersheds - Fish Finders \(Could Salmon Live Here?\)](#)
- [Salmon Subcommittee Videos](#)
- [Salmon ID Quiz](#)
- [Salmonoids in the Classroom: A Teacher's Resource for Studying the Biology, Habitat and Stewardship of Pacific Salmon](#)
- [The Pacific Streamkeepers Federation](#)
- [Earthling Enterprises - Salmon Education Resources](#)
- [Pacific Salmon Foundation](#)
- [Red Gold Film \(2008\)](#)
- [Salmon Confidential Film \(2013\)](#)
- [My Seasonal Round - OpenSchool BC](#)

Other

Social Media and Public Engagement:

- [The Marine Detective](#)
- [Save Our Wild Salmon](#)
- [Salmon Beyond Borders](#)
- [Friends of Wild Salmon](#)
- [Stand for Salmon](#)
- [Watershed Watch Salmon Society](#)
- [Salmon Protection and Watershed Network \(SPAWN\)](#)

Other In-class Resources:

- [Columbia Springs layout of sample SITC activities broken down by grade](#)
- [Salmon Know No Borders map \(Yukon Salmon Subcommittee\)](#)
- [Pacific Salmon Life Cycle poster \(Fisheries and Oceans Canada\)](#)

Cultural Context

- [Science First Peoples Teacher's Resource Guide](#)
- [Keeping our Traditions at the Fish Camps: Our Ancestors' Gift to our Youth document \(Selkirk First Nation, Pelly Crossing\)](#)
- [Native Language Dictionaries \(online language app for Southern Tutchone and Northern Tutchone dictionary online\)](#)
- [Nuu-chah-nulth Cultural Perspective to Complement the DFO Primary Salmonids-the-Classroom Pilot Version Curriculum](#)
- [A Time When Salmon are No More \(Teslin Tlingit Council\)](#)

Books

- [Life Cycle of a Salmon \(Bobbie Kalman\)](#)
- [Life Cycle of a Salmon \(Angela Royston\)](#)
- [Salmon Forest \(David Suzuki\)](#)
- [Salmon Stream \(Carol Reed-Jones\)](#)
- [A Salmon for Simon \(Betty Waterton\)](#)
- [Swimmer \(Shelly Gill\)](#)
- [Red Tag Comes Back \(Fred Phleger\)](#)
- [Salmon in the Trees \(Amy Gulick\)](#)
- [Salmon Creek \(Annette LeBox\)](#)
- [Sockeye Mother \(Brett David Huson\)](#)
- [Leap! A Salmon's Story Adventure \(fiction\) 400 words, Level K \(Grade 2\)](#)
- [First Nation - Salmon Book List](#)

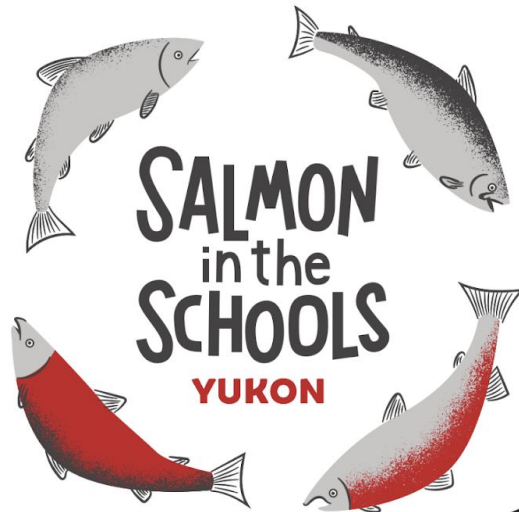
Worksheets

- [SalmonWILD](#)
- [Young Naturalists Club of BC](#)
- [PDF of Salmon Life cycle \(7/8/9\)](#)

This Educator Activity Guide & Resource Manual has been designed with revised Yukon curriculum in mind. Learning targets are set for each lesson (or game) based on learning standards (curricular competencies + content), as well as accompanying assessment rubrics.

While lessons are designed with one grade in mind, they may be used as an exemplar and adapted to specific grades and subject areas as needed. Possible learning standards relating to salmon within the Yukon curriculum are listed under the Learning Standards Section. Many of the activities in the following document include hands-on experiences where the students are encouraged to use movement to facilitate learning.

These activities were piloted in schools across the Yukon in 2017-2018 and the versions below have been modified based on experience and feedback.



Developed in partnership:
Rivers to Ridges
Big Fish Little Fish

Funding support by:
Pacific Salmon Commission
Pacific Salmon Foundation

**Educator
Activity Guide &
Resource Manual**

Appendix II: Yukon Salmon Write-up

The following text was a new addition to the resource guide, written by our team, and reviewed by local salmon experts including Al Von Finster.

Around the northern hemisphere, salmon are celebrated throughout the year. We celebrate them not only for the fascinating creatures that they are and for the food they provide, but also for what they represent.

Each year, millions of salmon return to spawn. Some spawn close to the coast, while others undertake tremendous journeys past seemingly insurmountable obstacles to reach the place they were born. The earliest fossil records of salmon date back over seven million years- and those salmon were three metres long! That salmon succeed in reaching their destination at all is wondrous, that in doing so they feed humans and other species and support entire ecosystems is truly amazing. The journey of salmon has inspired and educated us for millennia.

Salmon in the World

Species in the salmonid family, *Salmonidae*, include salmon, trout, whitefish and grayling. They are native to the northern hemisphere but have been introduced to countries all over the world.

Fish that we think of as Pacific salmon belong to the *Onchorhynchus* genus and are found only in eastern Asia and western North America. There are two species of salmon that occur only in Asia: the Masu and a subspecies of Masu called Amago.

The Atlantic salmon belongs to the *Salmo* genus and occur in eastern North America and Europe. The Atlantic salmon is similar to Pacific salmon because it is *anadromous*, which means that it is born in freshwater and spends most of its life in the ocean before returning to the stream where it was born to spawn (reproduce). However, unlike its Pacific brethren, the Atlantic salmon is *iteroparous*, meaning that it may undertake that journey several times over the course of its life. Pacific salmon are 'semelparous', meaning that they will undertake their legendary journey only once: after they spawn, they will die. In doing so, Pacific salmon share the nutrients they gathered in their life in the ocean, bringing them to freshwater systems. Most nutrients will be consumed in the migration up the river and production of eggs. The remaining nutrients are shared among the creatures that eat them, such as humans, bears, wolves, and scavenging birds, but also with the forest and the rivers. In fact, along the Pacific coast, trees and other plant life contain certain forms of nutrients that can only otherwise be found in the open ocean.

There are five species of Pacific salmon in North America: Chinook salmon (also known as King salmon because they are the largest), Sockeye salmon, Pink salmon, Chum salmon, and Coho salmon. Individual salmon from each of these species migrate to rivers and streams throughout Western North America. Salmon find the streams where they were

born using a homing instinct based on their sense of smell called 'olfactory memory'. They may travel as many as 50 km in a single day, which is equivalent to running a marathon every day for weeks! Some of the salmon travelling up the Yukon River, though, will travel farther than any other salmon in the world.

Female Salmon make a nest in flowing water called a redd to deposit their eggs into, and males then fertilize the eggs. Females lay between 2000 and 10000 eggs, and less than one percent of these will survive to become adults (fewer than 20 – 100 survivors). The eggs hatch in the autumn or early spring and the baby salmon (alevin) lie in their nests between the rocks under the stream bed to absorb the remains of their yolk sacs. They emerge from their nests when the yolk has been absorbed, we then call these young salmon fry or young-of-the-year.

Salmon in the Yukon

Most salmon reach the Yukon by travelling from the Bering Sea up the Yukon River; others travel from the Pacific Ocean up the Tatshenshini River. Salmon that reach Whitehorse will have journeyed 3000 km! Sockeye salmon travel up the Tatshenshini River. Fall Chum travel up the Yukon river. Chinook and Coho travel up both rivers to reach their destinations.

Coho salmon don't travel the whole Yukon River like Chinook and Fall Chum salmon do. Coho travel from the Yukon River to the Porcupine River system and spawn with the Fall Chum in the Fishing Branch and in other locations. Today, Chinook salmon are the only species that travel all the way to the headwaters of the Yukon River, past the Whitehorse fish ladder, and into tributaries of the Southern Lakes system to spawn.

Yukon salmon are stream-type salmon, meaning that they spend the first summer and one winter in freshwater. This is different from their coastal counterparts, which go to sea as fry at the end of the first summer. Yukon River Chinook salmon usually spend one year in freshwater before migrating out to sea. This means salmon in the Yukon have to grow very quickly after they have overwintered to allow them to flourish when they enter the Bering Sea. Yukon Chinook salmon fry migrate from their natal area (where they were born) to rearing areas generally located downstream along the Yukon River or other tributaries. The fry migrate up non-natal tributaries to rear and overwinter. Non-natal rearing and overwintering streams can be long distances away - and even across geographic boundaries - from their native streams- salmon born in Canada may use rearing and overwintering habitats in the United States. This means that to manage salmon populations at all life stages, Canadian, Yukon, Alaskan, American and First Nations governments all have to work together.

Managing Salmon in the Yukon

Yukon River salmon are managed cooperatively through the Pacific Salmon Treaty of 1985, signed by the governments of Canada, Alaska and the U.S. Within this Treaty is an agreement specific to the Yukon River system, the Yukon River Salmon Agreement. This

provides for salmon populations to be managed through the Yukon River Panel. Advisory and regulatory bodies such as the Yukon Salmon Sub-Committee, First Nation governments, Fisheries and Oceans Canada, the Department of Fish and Game, and the Alaska Board of Fish also have roles in the management of salmon. .

These bodies approach salmon management with these main goals:

- conserving salmon populations
- maintaining healthy fisheries
- encouraging each country to harvest only its fair share,
- communicating management decisions to the public in a timely and accurate fashion.

Despite these attempts to manage the populations, Chinook salmon numbers in the Yukon trended rapidly downward in the late 1990s and have been low since that time. Many First Nations communities were so worried about the low salmon numbers that they agreed to greatly reduce or stop fishing altogether for some time. Additionally, no fish were retained by the recreational angling community for 2009 until present (2019).

Sustaining Salmon in the Yukon

Salmon in the Yukon face similar threats to other species such as overfishing, pollution, development, and climate change. In the Yukon, climate change affects the periods of freezing and melting of spawning and rearing streams. Climate change results in droughts and may limit the groundwater discharges that support overwintering juvenile salmon. It is associated with melting permafrost which may deposit thousands of tons of fine sediment on spawning and rearing habitats. Late summer storms may erode eggs from the gravel and push juveniles from natal and non-natal streams. Development of irrigation for agriculture may remove water from tributary streams needed for spawning, rearing and overwintering. The Mayo and Whitehorse Rapids hydro-electrical dams have also impacted Chinook Salmon. Increased hydropower development on migration or spawning rivers may change the nature of the river.

Fisheries are a crucial link between salmon and salmon culture for humans. If more people want to catch fish we have difficult choices to make about how we can maintain our link to salmon while helping salmon maintain healthy populations.

So, what can be done to sustain our salmon? Well, we can't care about something we don't know about. Education is a crucial factor in helping people appreciate and conserve salmon populations, so that future generations can continue to be awed and inspired by the incredible journey of salmon in the Yukon.

Appendix III: Yukon River Watershed Map

SALMON in the **SCHOOLS** 
THE YUKON RIVER WATERSHED



Appendix IV: Updated Educator’s Guidebook

See additional attachment.