

Memorandum

To: Angus Mackey, Pacific Salmon Commission
Victor Keong, Pacific Salmon Commission

From: Nick de Graff, Salmon Stewardship Program Coordinator

Date: June 15, 2017

Re: Salmon Stewardship Coordinators for Yukon Schools. Year 5

This memorandum represents a summary of activities associated with the Salmon Stewardship Coordinators for Yukon Schools program (SSCYS) that was recently completed for the Pacific Salmon Commission in 2016/17 (Contribution Agreement CRE-02-16). The program involved 12 schools in the Whitehorse Area and at 11 rural schools throughout the Yukon (Table 1). Approximately 450 students were engaged in various program activities that included presentations, fish dissections and the opportunity of participating in a field trip to release fry that were raised over the winter in classroom aquariums.

The combined total of 1,156 Chinook fry that were raised in school aquariums were released into the McIntyre Incubation Facility. These fish were eventually coded wire tagged and seeded into Fox Creek, a small tributary that discharges into Lake Laberge in south central Yukon. Fox Creek is currently the focus of a long term restoration project that is overseen by Yukon College and the Ta'an Kwach'an Council.

In north Yukon, 337 Chinook fry were raised in school aquariums that were sourced from fertilized eggs collected from Blind Creek, in the communities of Faro and Ross River. These fry were released back in the Blind Creek in early and mid May of 2017. Another 878 Chinook fry, that were sourced from fertilized eggs obtained from the Mayo and Klondike rivers, were unsuccessfully raised in the community aquariums of Mayo and Dawson City.

Fertilized chum eggs were also sourced from the Kluane River in October of 2016 and raised to the fry stage in Beaver Creek, Destruction Bay and Haines Junction

school aquariums. These fish (487) were released back into the mainstem of the Kluane River in early May.

New to the 2016 program was the procurement of chum gametes from the Minto area of the Yukon River. A total of 349 chum were successfully raised to the fry stage in Dawson City, Pelly Crossing and Haines Junction school aquariums. These fish (487) were released back into the Minto area of the Yukon River in late May and early June.

Egg to fry survival in the individual aquariums ranged from 0 to 100 percent. The majority experienced high survival rates, averaging about 75 percent. In those few cases, where egg mortality was 100 percent, aquarium water was changed and additional eyed eggs or alevins were obtained from other community aquariums where incubation was more effective. With the exception of Mayo, all schools therefore participated in the program and had an opportunity to raise salmon and observe the early developmental stages in the classroom.

As in previous years the program coordinators encouraged each school to assume more responsibility for the maintenance of the aquariums in an attempt to reduce the overall program costs. Generally, only two visits were made to each school during the scholastic year. The initial visit was to seed eggs into each aquarium that was normally set up by school staff before arrival during the late summer or fall. Subsequent visits through the winter either presented information related to Pacific salmon life history and/or dissected a salmon. The program finished with assisting in field trips that released the fry during the spring. The need for additional visitations were associated with either a chiller malfunction or aquarium maintenance. Feed was either directly delivered to a school or mailed if the school was in a rural location.

Most of the schools that participated in 2016/17 had previously partaken in the program and were very comfortable with the prospect on taking on more responsibility. However, schools with little or no previous experience required more visitations by the program coordinators. All schools funded their own transportation costs associated with the field trips. The Whitehorse Rapids Fish Hatchery (Yukon Energy Corporation) donated feed and fertilized eggs for the Whitehorse program including the Carcross, Carmacks and Teslin schools.



Figure 1 Students from Holy Family School that released Chinook fry into the McIntyre Incubation Facility in Whitehorse on May 26, 2017.

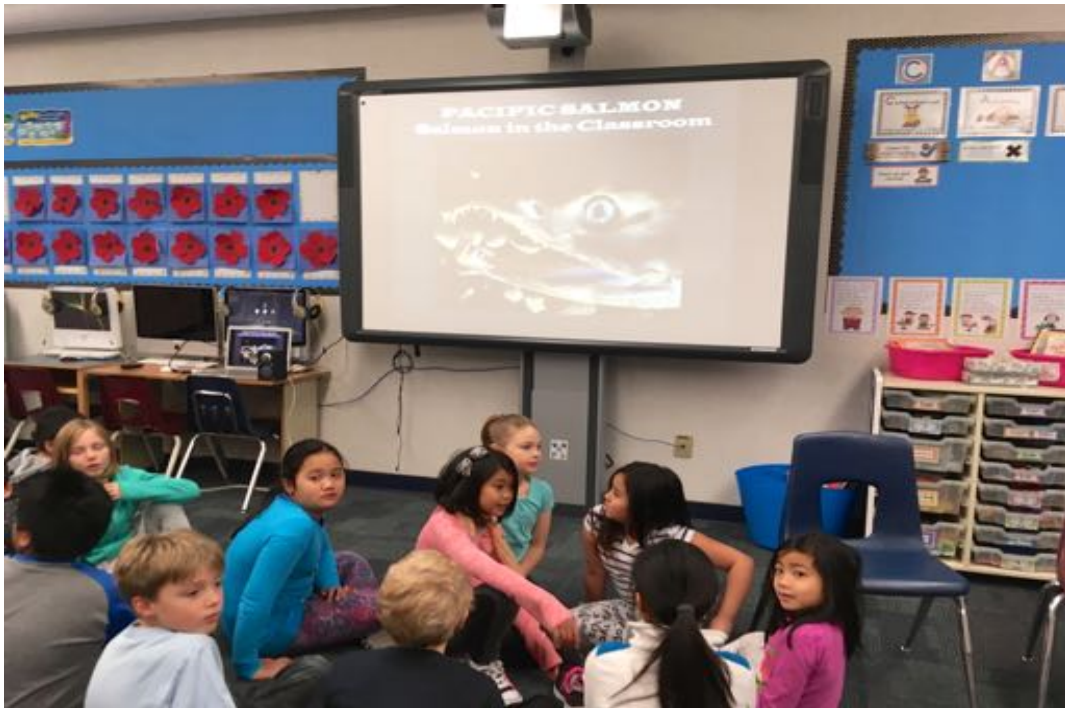


Figure 2 Classroom presentation at Christ the King Elementary School.



Figure 3 Students from Christ the King Elementary School that released Chinook fry into the McIntyre Incubation Facility in Whitehorse on June 9, 2016.



Figure 4 Students from Carcross School that release Chinook fry into the McIntyre Incubation Facility in Whitehorse on June 5, 2017.

Table 1 List of participating Yukon schools raising salmon in aquariums as part of the Stream to Sea Program, 2016/17.

Number	School	Species	Stock Origin	Date Seeded	Number Seeded	Date Released	Release Site	Number Released	% Survival
1	Beaver Creek	Chum	Kluane River	6-Oct-16	313	10-May-17	Kluane River	275	88
2	Carcross	Chinook	WRFH	4-Nov-16	100	5-June-17	MIF	100	100
3	Carmacks	Chum	Yukon River (Minto)	12-Oct-16	173	23-May-17	Minto Landing	143	83
4	D-Bay	Chum	Kluane River	7-Oct-16	150	10-May-17	Kluane River	102	68
5	Dawson	Chum	Klondike River and Yukon River (Minto)	30-Sep-16	280	23-May-17	Minto Landing	66	24
6	Faro	Chinook	Blind Creek	12-Aug-16	379	19-May-17	Blind Creek	257	68
7	Haines Junction	Chum	Kluane River	14-Oct-16	126	10-May-17	Kluane River	110	87
8	Mayo	Chinook	Mayo River	10-Aug-16	598	NA	Mayo River	0	0
9	Pelly Crossing	Chum	Yukon River (Minto)	12-Oct-16	138	5-Jun-17	Minto Landing	140	100
10	Ross River	Chinook	Blind Creek	27-Nov-16	100	4-May-17	Blind Creek	80	80
11	Teslin	Chinook	WRFH	6-Nov-16	100	24-May-17	MIF	98	98
12	Christ the King	Chinook	WRFH	25-Oct-16	100	09-Jun-17	MIF	98	98
13	KDFN Dukstra Headstart	Chinook	WRFH	4-Nov-16	100	12-Jun-17	MIF	104	100
14	Emily Tremblay	Chinook	WRFH	10-Nov-16	125	05-May-17	MIF	20	16
15	Elijah Smith	Chinook	WRFH	25-Oct-16	100	29-May-17	MIF	15	15
16	Goldenhorn	Chinook	WRFH	7-Nov-16	100	14-Jun-17	MIF	103	100
17	Grey Mountain	Chinook	WRFH	7-Nov-16	101	24-May-17	MIF	101	100
18	Holy Family	Chinook	WRFH	25-Oct-16	100	26-May-17	MIF	96	96
19	Jack Holland	Chinook	WRFH	1-Nov-16	100	06-Jun-17	MIF	105	100
20	Porter Creek	Chinook	WRFH	10-Nov-16	100	17-May-17	MIF	29	29
21	Selkirk	Chinook	WRFH	25-Oct-16	100	23-May-17	MIF	97	97
22	Takhini	Chinook	WRFH	1-Nov-16	112	29-May-17	MIF	112	100
23	Whitehorse Elementary	Chinook	WRFH	1-Nov-16	100	12-Jun-17	MIF	78	78

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2016/17 STREAM TO SEA PROGRAM
CAN-NIC-A-NICK ENVIRONMENTAL SCIENCES
FOR
PACIFIC SALMON COMMISSION

June 15, 2017

Salmon Stewardship Coordinator Summary Report – July/August 2016

Activities:

School	Teacher (s)	Activity	Date-Hours	Students	Comments
All schools		DFO Transplant and Fish Collection Applications	July 8, 2016 4 hours		
Organize Chinook Egg Takes		Emails, telephone and tee up support	July 26, 2016 1 hour		
Preparing for egg take in Ross River, Faro and Mayo		Grocery shop and assemble crew, teachers and gear.	August 8, 2016 6 hours		
Field Day		Drive to Mayo and set up camp	August 9, 2016 8 hours		
Field Day		Mayo River egg take	August 10, 2016 8 hours		Eggs=467 (+131 in basket)
Field Day		Drive to Faro	August 11, 2016 8 hours		
Field Day		Blind Creek egg take	August 12, 2016 8 hours		Eggs=579
Faro, Ross River and Mayo Schools		Count eggs and email teachers	August 12, 2016 1 hours		

Salmon Stewardship Coordinator Summary Report – Sept /October 2016

Activities:

School	Teacher (s)	Activity	Date-Hours	Students	Comments
2017 proposal scoping	Mr. Zimmerman	Meeting	September 9, 2016 1 hour		
2017 proposal and budget		Administration	September 13, 2016 4 hours		
2017 proposal and budget		Administration	September 22, 2016 1 hour		
Kluane, Beaver Creek, Carmacks and Pelly Crossing Schools		Organize chum egg takes with teachers	October 4, 2016 2 hours		
Preparing for egg takes - D Bay and Beaver Creek Schools		Grocery shop, assemble gear and tee up assistant	October 5, 2016 6 hours		
Beaver Creek School	Ms. Churchill and Ms. Warren	Chum egg take in Kluane River and drive to Beaver Creek from Whitehorse	October 6, 2016 8 hours		Eggs=311 to Beaver Creek
Kluane School	Ms. Blair and Ms. Johnson	Chum egg take in Kluane River and drive to Whitehorse from Beaver Creek	October 7, 2016 8 hours	10 students plus teachers and elders	Eggs=150 to D-Bay Mileage=950

School	Teacher (s)	Activity	Date-Hours	Students	Comments
Beaver Creek and Kluane Schools		Email egg count and ATU table	October 8, 2016 1 hour		
Preparing for egg takes in Pelly Crossing and Carmacks		Grocery shop, assemble gear and tee up assistant	October 10, 2016 4 hours		
Pelly Crossing and Carmacks Schools	Ms. Coates and Ms. Coburn	Drive to Pelly Crossing and set up aquariums in Carmacks and Pelly Crossing Schools	October 11, 2016 8 hours		Eggs=238 to PC
Pelly Crossing and Carmacks Schools	Ms. Coates and Ms. Coburn	Chum egg take in the Yukon River and deliver eggs to Pelly Crossing and Carmacks Schools then drive to Whitehorse	October 12, 2016 12 hours		Eggs=173 to C Mileage=776
Pelly Crossing and Carmacks Schools	Ms. Coates and Ms. Coburn	Email egg count and ATU table	October 13, 2016 1 hour		
Haines Junction School	Mr. Preto	Drive to Kluane, egg take, set up aquarium then to Whitehorse	October 14, 2016 8 hours	6 students plus teacher	Eggs=126 to HJ Mileage=678
Haines Junction School	Mr. Preto	Email egg count and ATU table	October 15, 2016 1 hour		

Salmon Stewardship Coordinator Summary Report – October/November 2016

Activities:

School	Teacher (s)	Activity	Date-Hours	Students	Comments
Elijah Smith, Christ the King and Holy Family Schools	Ms. Gillard, Ms. Stitt and Ms. Bradford	Fill and ready 3 aquariums	October 24, 2016 4 hours		Mileage=90 km
Elijah Smith, Christ the King, Selkirk, Holy Family Schools	Ms. Gillard, Ms. Stitt, Ms. Morham, Ms. Leveque and Ms. Bradford	Seed eggs (100) into 4 aquariums and give presentations	October 25, 2016 6 hours	40 students	Mileage=85 Visited several other schools to tee up program and aquariums
Takhini and Whitehorse Elementary Schools	Ms. Dawson and Ms. Bouayad	Fill and ready 2 aquariums, email egg count and ATU tables to each school	October 26, 2016 5 hours	8 students	Mileage=74
Takhini, Whitehorse Elementary and Jack Holland Schools	Ms. Dawson, Ms. Bouayad, Ms. Moore and Ms. Koser	Fill and ready 1 aquarium, seed eggs (100) into 3 aquariums and give presentations, email ATU tables	November 1, 2016 6 hours	45 students	Mileage=73
Dukstra Headstart and Carcross School	Ms. Koser and Mr. Traynor	Seed (100) eggs into 1 aquarium, fill 1 aquarium, seed eggs (100) and give presentation	November 3, 2016 5 hours	5 students	Mileage=157
Grey Mountain and Goldenhorn Schools	Ms. Nyman and Ms. Reid	Fill and ready 2 aquariums	November 4, 2016 3 hours		Mileage=58

School	Teacher (s)	Activity	Date-Hours	Students	Comments
Teslin School	Ms. Banks	Meet and provide eggs (100) to the teacher for the school.	November 6, 2016 1 hour		Mileage=54
Grey Mountain and Goldenhorn Schools	Ms. Nyman and Ms. Reid	Seed (100) eggs into 2 aquariums and give presentations	November 7, 2016 2 hours	30 students	Mileage=58
Porter Creek Secondary School	Ms. Keenan	Fill and ready 1 aquarium	November 8, 2016 2 hours		Mileage=62
Emilie Tremblay School	Ms. Lavallee	Set up aquarium from scratch. Email database and pickup Teslin chiller	November 9, 2016 5 hours		Mileage=60
Emilie Tremblay, Porter Creek Secondary and Goldenhorn Schools	Ms. Keenan, Ms. Lavallee and Ms. Nyman	Seed eggs (100) into 2 aquariums and give presentations, adjust others.	November 10, 2016 3 hours	25 students	Mileage=65

Salmon Stewardship Coordinator Summary Report – February 2017

Activities:

School	Teacher (s)	Activity	Date-Hours	Students	Comments
Christ the King	Ms. Gillard	Presentation and dissection	November 17, 2016 3 hours	30 students 3 teachers	Mileage=50
Elijah Smith, Goldenhorn, Duksta Headstart, Holy Family and Jack Holland	Ms. Bradford	Presentation and adjust 4 other aquariums	November 23, 2016 3 hours	15 students	Mileage=57
DFO	Ms. Naylor	Preparing spreadsheets to submit to DFO as part of licence requirement	November 27, 2016 2 hours		
DFO and Hidden Valley School		Submitting spreadsheets to DFO and coordinating presentations/dissections	November 28, 2016 1 hour		
Porter Creek Secondary and Emilie Tremblay	Ms. Keenan and Ms. Lavallee	Presentation and dissection and adjust 1 other aquarium.	December 2, 2016 3 hours	15 students 2 teachers	Mileage=74
D-Bay	Ms. Blair	Purchase and deliver filter for aquarium.	December 5, 2016 1 hour		Mileage=78
11 schools		Check aquariums after holidays and deliver feed and follow up	January 4, 2017 6 hours	9 teachers	Mileage=70

School	Teacher (s)	Activity	Date-Hours	Students	Comments
5 schools		Check aquariums after holidays, deliver feed, mail out feed and follow up	January 4, 2017 3 hours	2 teachers	Mileage=55
Selkirk School	Ms. Morham	Presentation and dissection	January 12, 2017 3 hours	3 teachers 15 students	Mileage=52
Emilie Tremblay	Ms. Thibault	Presentation and dissection	January 26, 2017 3 hours	3 teachers 20 students	Mileage=62
Takhini	Ms. Dawson	Presentation and dissection	January 27, 2017 3 hours	3 teachers 30 students	Mileage=58
Faro and Ross River	Mr. de Jong, Ms. Coates and Ms. Etzel	Drive to Faro and check Carmacks Aquarium	January 30, 2017 5 hours		Mileage=360
Faro and Ross River	Mr. de Jong and Ms. Etzel	Presentations, dissections and drive to Whitehorse	January 31, 2017 9 hours	6 teachers 40 students	Mileage=535

Salmon Stewardship Coordinator Summary Report – March - April 2017

Activities:

School	Teacher (s)	Activity	Date-Hours	Students	Comments
Jack Holland, Porter Creek, Goldenhorn	Ms. Moore Ms. Keenan Ms. Nyman	Clean and set up automatic feeders in aquariums.	February 27, 2017 3 hours		Mileage=63
Duksta Headstart, Grey Mountain, Whitehorse Elementary, Emile Tremblay and Carcross Schools	Ms. Koser, Ms. Reid, Ms. Lavallee, Ms. Beudoin and Ms Bouayad	Clean and set up automatic feeders in aquariums.	March 1, 2017 6 hours		Mileage=165
Takhini Elementary	Ms. Dawson	Clean and set up automatic feeder in aquarium.	March 7, 2017 1 hour		Mileage=42
Duksta Headstart	Ms. Koser	Clean aquarium and drop off fish food at YCS for north schools	March 10, 2017 1 hour		Mileage=38
Porter Creek, Grey Mountain and Takhini School	Ms. Dawson, Ms. Keenan and Ms. Reid	Clean and either fix or set up automatic feeders in aquariums.	March 16, 2017 3 hours		Mileage=67
Emile Tremblay and Porter Creek Schools	Ms. Keenan and Ms. Lavallee	Change water, remove dead fry and adjust temperatures	March 21, 2017 2 hours		Mileage=66

School	Teacher (s)	Activity	Date-Hours	Students	Comments
Duksta Headstart, Grey Mountain, Porter Creek and Emile Tremblay Schools	Ms. Koser, Ms. Keenan, Ms. Lavallee and Ms. Reid	Remove dead fry and check water temperature.	March 30, 2017 2 hours		Mileage=72
Elijah Smith, Whitehorse Elementary, Porter Creek, Holy Family and Emile Tremblay Schools	Ms. Bradford, Ms. Keenan, Ms. Lavallee, Ms. Stitt and Ms. Bouayad	Remove dead fry, change water and check water temperature.	April 4, 2017 3 hours	15 students	Mileage=65
Elijah Smith, Porter Creek and Emile Tremblay Schools	Ms. Bradford, Ms. Keenan and Ms. Lavallee	Remove dead fry, change water, clean filter and check water temperature.	April 7, 2017 3 hours	15 students	Mileage=71

Salmon Stewardship Coordinator Summary Report – May - June 2017

Activities:

School	Teacher (s)	Activity	Date-Hours	Students	Comments
Emile Tremblay, Elijah Smith and Goldenhorn Schools	Ms. Lavelle, Ms. Nyman and Ms. Bradford	Change water, add fry to one aquarium (Emile Tremblay) and adjust temperatures	May 8, 2017 3 hours		Mileage=70
Holy Family, Porter Creek, Takhini and Emile Tremblay	Ms. Lavelle, Ms. Dawson, Ms. Keenan and Ms. Stitt	Check aquariums and adjust temperatures. Pickup fish for dissecting at DFO. Prepare to DB, BC and HJ releases.	May 9, 2017 5 hours		Mileage=77
Haines Junction, D-Bay and Beaver Creek Schools	Ms. Johnson, Ms. Warren and Mr. Preto	Release chum salmon into Kluane River, Dissection and stream study	May 10, 2017 11 hours	20 students, 10 adults including teachers	Mileage=669
Porter Creek Secondary	Ms. Keenan	Release chinook salmon into MIF and stream study	May 17,2017 3 hours	8 students, 3 adults	Mileage=62
Emilie Tremblay, Grey Mountain and Whitehorse Elementary	Ms. Lavelle, Ms. Reid, Ms. Bouayad	Check all aquariums, install an automatic feeder and change out failed chiller at ET and drive to Faro.	May 18, 2017 10 hours	3 teachers	Mileage=477

School	Teacher (s)	Activity	Date-Hours	Students	Comments
Faro School	Mr. de Jong	Fry release into Blind Creek, mothball aquarium drive back to Whitehorse	May 19, 2017 8 hours	3 teachers 15 students	Mileage=405
Haines Junction and Selkirk Schools	Ms. Morham Mr. Preto	Drive to HJ and give presentation and dissection in morning, drive to Whitehorse and fry release and stream study at MIF	May 23, 2017 9 hours	4 teachers 20 students	Mileage=380
Grey Mountain and Teslin Schools	Ms. Banks and Ms. Reid	Remove fry and mothball aquariums.	May 24, 2017 4 hours	4 teachers 14 students	Mileage=62
Holy Family, Elijah Smith and Emilie Tremblay	Ms. Stitt	Dissection and presentation, check two aquariums.	May 25, 2017 3 hours	4 teachers 15 students	Mileage=81
Holy Family and Emilie Tremblay	Ms. Stitt and Ms. Lavelle	Fry release and stream study at MIF. Change water and adjust temperature of aquarium.	May 26, 2017 3 hours	3 teachers 20 students	Mileage=78
Takhini and Elijah Smith Schools	Ms. Dawson and Ms. Bradford	Fry release and stream study at MIF. Clean and mothball two aquariums in storage	May 29, 2017 5 hours	4 teachers 25 students	Mileage=52

School	Teacher (s)	Activity	Date-Hours	Students	Comments
Whitehorse Elementary and Dusk'a Learning Centre	Ms. Bouayad and Ms. Koser	Check temperature and change water in two aquariums.	June 1, 2017 2 hours		Mileage=43
Emilie Tremblay and Carcross Schools	Ms. Lavelle and Mr. Traynor	Release fish (two schools) into MIF, stream study and mothball aquariums.	June 5, 2017 4 hours	4 teachers 20 students	Mileage=59
Jack Hulland School	Ms. Moore	Release fish into MIF	June 6, 2017 2 hours	2 teachers 10 students TKC and YRP	Mileage=62
Takhini School	Ms. Dawson	Dissection at FN Healing Centre (Jackson Lake)	June 7, 2017 2 hours	3 teachers 15 students	Mileage=92
Takhini School	Ms. Dawson	Stream study at FN Healing Centre	June 8, 2017 2 hours	3 teachers 15 students	Mileage=87
Christ the King	Ms. Gillard	Release fish into MIF, mothball aquarium and stream study.	June 9, 2017 3 hours	5 teachers 35 students	Mileage=56
Whitehorse Elementary and Dusk'a Learning Centre	Ms. Bouayad and Ms. Koser	Release fish into MIF, mothball aquariums and stream study.	June 12, 2017 6 hours	5 teachers 25 students	Mileage=73
Goldenhorn School	Ms. Nyman	Release fish into MIF, mothball aquarium, presentation and stream study.	June 14, 2017 5 hours	2 teachers 30 students	Mileage=62