

**MCINTYRE CREEK
SALMON INCUBATION PROJECT
2013-2014**

**YUKON RIVER SALMON RESTORATION AND ENHANCEMENT
FUND
Project # CRE-65-13**

March 2014 Final Report

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Abstract

The McIntyre Creek Salmon Project was administered by the Yukon Research Centre until August of 2013 when Yukon College took over management of the facility. Yukon Research Centre worked in partnership with Yukon College Renewable Resources Management students, DFO, Ta'an Kwa'chan First Nation, Whitehorse Rapids Fish Hatchery, and various contractors to carry out its educational and salmon culture objectives. The project coded wire tagged and released 22,163 Chinook fry from the 2013 brood year and released the fish into the Fox Creek system on July 8th, 2013.

Introduction

McIntyre Creek Salmon Incubation Project (MCSIP) was administered by the Yukon Research Centre until August of 2013 when Yukon College took over management of the facility. The Yukon Research Center has worked with Yukon College Renewable Resources Management Diploma students, partner organizations and contractors to operate the site since the spring of 2002. Yukon College students were involved in all aspects of the project over the 2013-2014 operating season, from the ponding and rearing of the 2012 fry to the preparing for ponding of the 2013 fry.

The Department of Fisheries and Oceans (DFO) continue to provide additional guidance and act as technical advisors when required. Yukon College has continued to work with the students in class and at the site over the past academic year. The roles of the students, and particularly that of the student manager, provided hands on practical skills including hatchery management, construction, troubleshooting and fish rearing. Many of these skills are valuable to the students' academic development as they proceed into their second (and final) year of their Renewable Resources Management Diploma program.

Ponding and Rearing

Yukon College students moved fry into Capilano troughs between late March and early April 201. The student manager and student employees looked after the daily feeding and cleaning until the last of the fry were released in July.

Flows in each of the troughs was initially set at 60 LPM and was gradually increased over the rearing period to about 100 LPM maximum from mid-May until the time of release.

Fish were sampled once per week to assess health status and food requirements (See Appendix 1).

Food was distributed using a 24 hour Ziegler belt feeder. Two feeders were installed per trough.

Capilano Troughs were cleaned daily using brooms and flow control to gently channel the settled solids to the tank outlet. The fish screen at the downstream end of the channel was cleaned daily to prevent breaching of the screen and back watering of the channel.

Skretting feed Crumble #0 and #1 were purchased for the 2012 rearing season.

School and Community Involvement

Renewable Resource Management students participated in the maintenance of the site and one of the students has been working as the project manager.

In collaboration with DFO, Chinook broodstock were incubated at the site. Some of the Chinook salmon eggs were used in a hands-on activity as part of the Stream to Sea project whose objective is to foster stewardship values in youth. The project helps to educate students on the early life stages and life requirements of Pacific salmon. For the 2013-2014 season, salmon were distributed by DFO to elementary school classrooms at the eyed egg stage. These fish were then reared through to the fry stage in a classroom aquarium which allowed students to monitor the development of the fish by charting Accumulated Thermal Units (ATUs). As a celebration of the life of the salmon, and as an end of the school year activity, students return fry to be released to the areas where they were collected.

The Ta'an First Nation also celebrated the Fox Creek salmon fry release with an event featuring refreshments, handouts, displays, quizzes, and prizes at the site.

Tagging

Tagging was completed by Janet Rempel who was trained and worked with Eh Fish Contracting at the Whitehorse Rapids Hatchery. She tagged a total of 22,163 fish between June 26th and July 4th. All of the tagged fish were released into Fox Creek.
(See Appendix 2)

Release of Fry

The release of fry from 2012 broodstock was carried out July 8th of 2013. The fry were turned over to Ta'an Kwa'chan First Nation employees the the MCSIP and immediately transported to Fox Creek for release by their citizens.

Site Repairs and Upgrades

The site was provided with a major cleanup over the summer. Garbage and site materials were removed and the perimeter fence straightened and secured with concrete. Washed gravel was brought in to fill uneven ground and help with moisture management at the site. Walk ways were graveled and patio stones replaced on the walkways.

Upgrades were also made to various handrails along the various walkways and stairs to the troughs and incubation boxes.

Security System

Absolute Security continues to monitor the alarm system. The project manager or their delegate carried a pager with text capability, the number of which was at the top of Absolute Security's alarm call-out list. This system is easily adapted to changing responsible personnel at the site. A land line is on site to enable the worker to request assistance if/when required or in case of emergency. All buildings including incubation boxes, Capilano troughs and water levels are monitored by Absolute. If there is an issue at the site, the student manager and the YRC are contacted.

Brood stock Collection

In 2012, Fox Creek eggs were collected by Whitehorse Rapids Fish Hatchery at Whitehorse Rapids Fishway. Chinook broodstock was received at McIntyre from the Whitehorse Rapids hatchery in October.

No Chinook were collected from Tatchun Creek due to low numbers of returning adults.

Incubation

Fox Creek eggs were fertilized at the Whitehorse Rapids Fish Hatchery site with milt from at least two males per female and planted into heath trays. Eggs were incubated at Whitehorse Rapids until the eyed stage, which at that time 102,500 Fox Creek eggs were transferred to the McIntyre Incubation site on October 27.

(See Appendix 3)

On January 31st, 2013 there was an incident at the hatchery that resulted in 10,093 alevin deaths. A faulty pipe in the systems water settling box allowed an accumulation of debris near the outflow of the incubation box reducing water flow to the alevins for a number of hours. This resulted in the alevins not getting enough oxygen and thus perishing. Water flows were re-instated to 60 L/min. and the remaining alevins survived. Mortalities were picked over a 5 or 6 day period to remove the dead alevins and so as not to stress the remaining survivors.

Monitoring and Maintenance

The Yukon College student manager and other students undertook regular checks of the site once the egg takes were completed. They visited the site daily to check temperatures and flows, as well as clean intakes, and pick eggs.

Upon troughing of the fry in the spring, daily checks included water flows, feeding and screen cleaning.

Egg Picking

Yukon College student employees removed dead eggs from the trays between October and December 2012.

High mortalities occurred in January 2013 due to debris clogging the system and reducing water flows to the incubation box.

Adult Return Monitoring (Tatchun)

Due to a low run in the Tatchun System the McIntyre crews did not go to Tatchun Creek this season and thus did not monitor returns.

Upcoming Season

Yukon College students have prepared the site for rearing, and the 2012/2013 fry were ponded in early April 2013.

A number of projects are scheduled for this season including a secondary dam downstream of the hatchery to provide additional protection, renovations to the alarm system and electrical and assessment of implementing new incubation box.

Appendix I

Final Biosampling before Release

July 2, 2013 Fox Creek Juveniles

Sample #	Length(mm)	Weight(g)	Condition (K)
1	53	1.38	0.93
2	51	1.35	1.02
3	50	1.80	1.44
4	49	1.15	0.98
5	50	1.17	0.94
6	48	1.13	1.02
7	55	1.22	0.73
8	53	1.37	0.92
9	44	0.88	1.03
10	49	1.17	0.99
11	49	1.50	1.27
12	52	1.58	1.12
13	55	1.78	1.07
14	47	1.61	1.55
15	48	1.50	1.36
16	49	1.65	1.40
17	47	1.14	1.10
18	45	0.85	0.93
19	52	2.48	1.76
20	48	1.13	1.02
21	47	1.04	1.00
22	47	1.34	1.29
23	51	1.31	0.99
24	43	1.09	1.37
25	45	0.94	1.03
26	50	1.39	1.11
27	45	0.85	0.93
28	54	1.62	1.03
29	50	1.16	0.93
30	50	1.30	1.04
Average	49.2	1.33	1.11

Appendix II Financial Report

CRE 65-13 - McIntyre Creek					
Labour Wages & Salaries	PSC Budget	Apr- Jun 13	Jul 13 - Mar 14	Total Expenditures	Surplus/(Deficit)
Student Manager - THOMAS/REMPEL	8,920	1,800	7,508	9,308	-388
Student Assistants	8,960	118	3,414	3,532	5,428
Casuals - REMPEL	3,072	640	2,432	3,072	0
Employer Costs 8% of wages	1,676	178	1,309	1,486	190
Tagger - REMPEL	5,000		5,000	5,000	0
Total Labour Costs	27,628	2,736	19,663	22,399	5,229
Site/Project Costs					
Travel	500			0	500
Small Tools & Equipment	500		986	986	(486)
Repairs & Maintenance	3,000	264	4,530	4,795	(1,795)
Permits	50		30	30	20
Other site costs	5,000	4,695	1,758	6,453	(1,453)
Total Site/Project Costs	9,050	4,959	7,304	12,264	(3,214)
Overhead/Indirect Costs					
Telephone & Long Distance	1,000	286	834	1,121	-121
Indirect/Overhead Costs	3,600	363	3,237	3,600	0
Total Overhead Costs	4,600	649	4,071	4,721	(121)
Project Total Costs	41,278	8,345	31,038	39,383	1,895
Pacific Salmon Commission funding received				20,640	
Funding outstanding				18,743	