

Summary of Minnow trapping component of the SD 91/UNBC eDNA project

2023 Season

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Photos on cover page, left to right:
Ruben Daniels and Isaac Craig, NVSS working on Swanson Creek.
Isaac Craig, Malakai Reynolds obtaining water samples on Murray Creek

All photos, B Booth

Project Overview

This report summarizes the results of a minnow trapping project that is being conducted under the auspices of the Koh-learning in Our Watersheds program, an experiential nature- and place-based program of integrative learning taking place throughout School District (SD) 91, Nechako Lakes. The goals of this project are threefold: to support and enhance the outdoor learning outcomes of students in SD 91; to provide baseline information related to juvenile fish in streams in the Nechako River Basin (NRB); and because it is also paired with joint UNBC/SD 91 project that is using environmental DNA (eDNA) to examine the distribution of juvenile salmonids in a selected number of streams in the NRB, the results help corroborate eDNA signals that were detected in selected streams.

Sampling Summary

We sampled 8 creeks at 16 different sampling locations in 2023 (Table 1). Sites were sampled from July 25 through to September 9. All sampling was completed by Barry Booth and a crew of high school students from School District 91.

Table 1. Sites sampled in 2023.

Water Body	Watershed Code	Number of sites
Dog/Unnamed Creek ¹	-	1
Nine Mile Creek	180-350800	1
Ormond Creek	180-374000-51000	1
Tatsutnai Creek	180-360100	1
Murray Creek	180-267500	6
Swanson Creek	180-507600	2
Greer Creek	180-481700	2
Twin Creek	180-526600	2
	Total	16

Most of the creeks were sampled on a small geographic scale (e.g., 1-2 sites near one another). Murray Creek was sampled more extensively in 2023 to continue to enhance our understanding of the distribution of fish on this creek.

¹ This is a tributary of small creek off of the Dog Creek FSR that we have called Dog Creek in the past, which was incorrect. In discussions with the Province, we have adjusted the name of the creek to reflect this error and have left the watershed code blank as per recommendations by the Province.

Results from trapping

Juvenile Chinook - overall

We caught a total of 34 chinook salmon during our trapping efforts. Chinook were caught in 3 of the 8 creeks that we sampled. Chinook caught ranged from 45 to 75 mm in length and weighed between 2 and 5.5 grams (Table 4). Individual fish data can be found in appendix 2.

Table 4. Summary of chinook salmon caught during trapping season.

Creek	Site #'s where chinook were caught	Total # caught	Length (mm)		Weight (g)	
			Min	Max	Min	Max
Swanson Creek	1, 2	14	60	70	3	4.5
Twin Creek	1	12	45	70	2	5.5
Dog/Unnamed Creek	1	5	60	60	2.5	3

Other species caught.

Overall, we caught a total of 192 individuals from seven different species (Table 5). A detailed accounting of fish caught can be found in Appendix 3.

Table 5. Total number of each species caught in minnow traps in each creek during trapping season.

Creek	Species caught							Totals
	Chinook Salmon	Rainbow Trout	Lake Chub	Northern Pikeminnow	Prickly Sculpin	Redside Shiner	Sucker	
Dog/unnamed Creek	5	1	0	0	0	0	0	6
Nine Mile Creek	0	8	0	0	0	0	0	8
Ormud Creek	3	3	0	0	1	0	0	7
Tatsutnai Creek	0	2	0	0	0	0	0	2
Murray Creek	0	27	32	1	0	11	1	72
Swanson Creek	14	1	0	0	0	0	57	72
Greer Creek	0	0	3	4	0	0	5	12
Twin Creek	12	2	0	0	0	0	0	14
Grand Total	34	44	35	5	1	11	63	192

Of note was the large number of creeks (6 out of 8) where rainbow trout caught. Sites where rainbow trout were captured is presented in Table 4.

Table 4. Sites where rainbow trout were caught.

Creek	Sites
Dog/Unnamed Creek	1
Nine Mile Creek	1
Ormund Creek	1
Tatsutnai Creek	1
Murray Creek	5,6

In addition to the widespread occurrence of rainbow trout throughout the study area was the continued expansion of the range of lake chub in Murray Creek. Lake chub have now been found as high up as Site 5 on Murray Creek.

Other observations

Reduced flows were observed throughout the sampling area. We noted that some creeks were disconnected from the main stem of the Nechako. This was most dramatic at Swanson Creek in the upper Nechako. Water ran subsurface just below Site 1 on Swanson Creek (see photos below) when sampling took place on 09 September.



Photo 1. Site 1 on Swanson Creek looking downstream. Flows go sub surface just downstream of pool in background of photo. This pool is approximately 1 km from the confluence with the Nechako.



Photo 2. Looking upstream towards Site 1



Photo 3. Looking downstream from Photo 2.

Acknowledgments

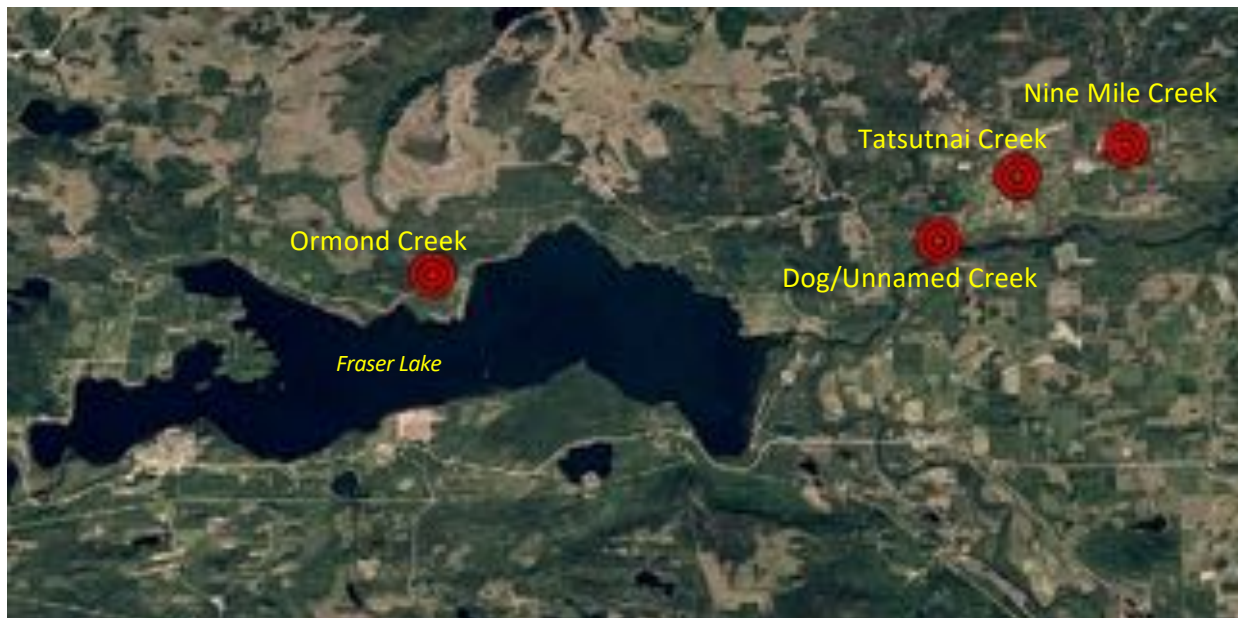
Funding and logistical support was provided for this project by the following organizations:

NEWSS
UNBC
School District 91
Nechako Valley Secondary School
Vancouver Foundation
DFO/BC SRIF

Special thanks to all the landowners who allowed us to have access to their property.

Appendix 1. Maps associated with the 2023 sampling season.

Ft. Fraser Sites



Ormond Creek



Tatsutnai Creek



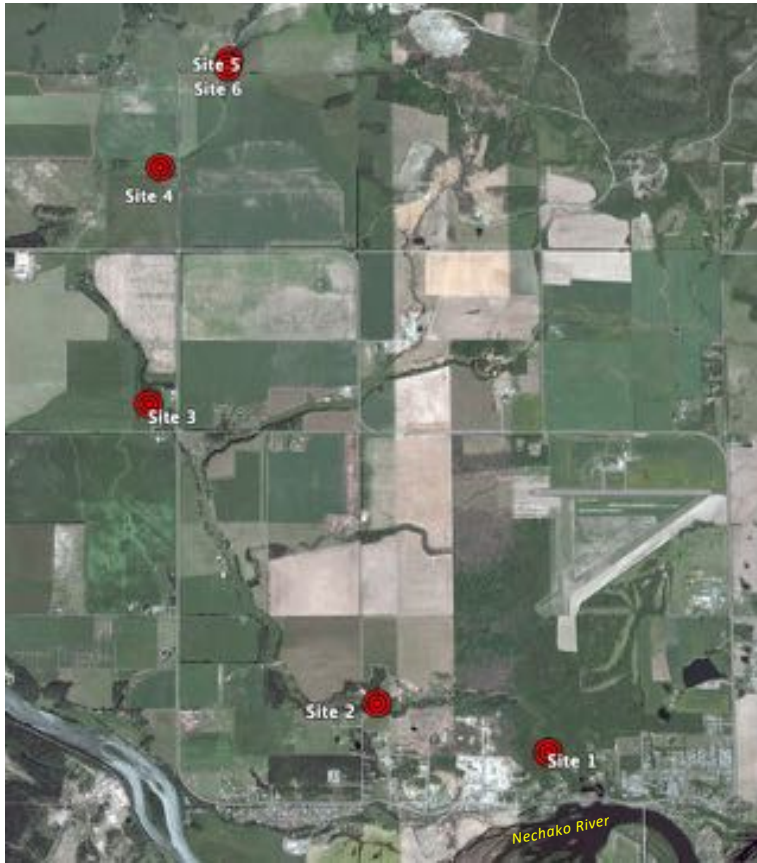
Dog/Unnamed Creek



Nine Mile Creek



Murray Creek Sites



Upper Murray



Mid Murray



Lower Murray



Upper Nechako Sites



Twin Creek



Swanson Creek



Greer Creek



Appendix 2. Lengths and weights of Chinook salmon caught.

Creek	Site	Species	Length (mm)	Wt (g)
Ormund Creek	1	Chinook Salmon	65	3.0
Ormund Creek	1	Chinook Salmon	60	3.5
Ormund Creek	1	Chinook Salmon	60	3.0
Dog/Unnamed Creek	1	Chinook Salmon	60	2.5
Dog/Unnamed Creek	1	Chinook Salmon	60	2.5
Dog/Unnamed Creek	1	Chinook Salmon	60	3.0
Dog/Unnamed Creek	1	Chinook Salmon	60	2.5
Dog/Unnamed Creek	1	Chinook Salmon	60	2.5
Twin Creek	2	Chinook Salmon	70	3.0
Twin Creek	2	Chinook Salmon	65	3.5
Twin Creek	2	Chinook Salmon	45	2.0
Twin Creek	2	Chinook Salmon	65	3.0
Twin Creek	2	Chinook Salmon	75	5.5
Twin Creek	2	Chinook Salmon	60	3.5
Twin Creek	2	Chinook Salmon	65	2.5
Twin Creek	2	Chinook Salmon	75	3.5
Twin Creek	2	Chinook Salmon	65	2.5
Twin Creek	2	Chinook Salmon	60	3.0
Twin Creek	2	Chinook Salmon	70	4.0
Swanson Creek	2	Chinook Salmon	60	3.0
Swanson Creek	1	Chinook Salmon	70	4.0
Swanson Creek	1	Chinook Salmon	70	4.5
Swanson Creek	1	Chinook Salmon	60	4.5
Swanson Creek	2	Chinook Salmon	70	4.0
Swanson Creek	2	Chinook Salmon	65	3.0
Swanson Creek	2	Chinook Salmon	65	3.5
Swanson Creek	2	Chinook Salmon	65	3.0
Swanson Creek	2	Chinook Salmon	65	3.0
Swanson Creek	2	Chinook Salmon	65	3.0
Swanson Creek	2	Chinook Salmon	70	3.5
Swanson Creek	2	Chinook Salmon	70	3.0
Swanson Creek	2	Chinook Salmon	65	4.0
Swanson Creek	2	Chinook Salmon	65	3.5

Appendix 3. Fish caught during the 2023 sampling season.

Creek	Site	Water temp	Turbidity	Trap #	Survey Date	Species	#	Min_length (mm)	Max_length (mm)
Murray Creek	1	14.0	moderately turbid	1	2023-07-25	No Fish Caught	0		
Murray Creek	1	14.0	moderately turbid	2	2023-07-25	Redside Shiner	11	45	75
Murray Creek	1	14.0	moderately turbid	2	2023-07-25	Sucker	1	95	95
Murray Creek	2	14.5	moderately turbid	1	2023-07-25	No Fish Caught	0		
Murray Creek	2	14.5	moderately turbid	2	2023-07-25	Lake Chub	2	85	90
Murray Creek	3	13.0	lightly turbid	1	2023-07-27	Lake Chub	2	50	65
Murray Creek	3	13.0	lightly turbid	1	2023-07-27	Northern Pike minnow	1	50	50
Murray Creek	3	13.0	lightly turbid	2	2023-07-27	Lake Chub	20	50	80
Murray Creek	4	12.0	lightly turbid	1	2023-07-27	Lake Chub	5	60	95
Murray Creek	4	12.0	lightly turbid	2	2023-07-27	No Fish Caught	0		
Murray Creek	6	12.5	clear	1	2023-07-27	Rainbow Trout	1	120	120
Murray Creek	6	12.5	clear	1	2023-07-27	Lake Chub	1	45	45
Murray Creek	6	12.5	clear	2	2023-07-27	Rainbow Trout	2	100	110
Murray Creek	4	10.6	lightly turbid	1	2023-08-31	No Fish Caught	0		
Murray Creek	4	10.6	lightly turbid	2	2023-08-31	Lake Chub	1	90	90
Murray Creek	6	11.1	clear	1	2023-08-31	Rainbow Trout	1	115	115
Murray Creek	6	11.1	clear	2	2023-08-31	Rainbow Trout	3	65	120
Murray Creek	5	8.0	clear	1	2023-10-16	Rainbow Trout	3	55	80
Murray Creek	5	8.0	clear	1	2023-10-16	Lake Chub	1	60	60
Murray Creek	5	8.0	clear	2	2023-10-16	No Fish Caught	0		
Murray Creek	6	8.0	clear	1	2023-10-16	Rainbow Trout	4	50	70
Murray Creek	6	8.0	clear	2	2023-10-16	Rainbow Trout	12	60	140

Appendix 3. Fish caught during the 2023 sampling season continued

Creek	Site	Water temp	Turbidity	Trap #	Survey Date	Species	#	Min_length (mm)	Max_length (mm)
Ormund Creek	1	15.0	clear	1	2023-08-31	Chinook Salmon	3	60	65
Ormund Creek	1	15.0	clear	1	2023-08-31	Rainbow Trout	1	60	60
Ormund Creek	1	15.0	clear	2	2023-08-31	Rainbow Trout	2	55	110
Ormund Creek	1	15.0	clear	2	2023-08-31	Prickly Sculpin	1	55	55
Tatsutnai Creek	1	13.0	clear	1	2023-08-31	No Fish Caught	0		
Tatsutnai Creek	1	13.0	clear	2	2023-08-31	Rainbow Trout	2	55	65
Unnamed Creek	1	10.6	clear	1	2023-08-31	Chinook Salmon	2	60	60
Dog/ Unnamed Creek	1	10.6	clear	2	2023-08-31	Chinook Salmon	3	60	60
Dog/ Unnamed Creek	1	10.6	clear	2	2023-08-31	Rainbow Trout	1	80	80
Nine Mile Creek	1	14.0	moderately turbid	1	2023-08-31	Rainbow Trout	4	45	110
Nine Mile Creek	1	14.0	moderately turbid	2	2023-08-31	Rainbow Trout	4	50	115
Greer Creek	1	15.8	clear	1	2023-08-10	No Fish Caught	0		
Greer Creek	1	15.8	clear	2	2023-08-10	No Fish Caught	0		
Greer Creek	2	15.0	clear	1	2023-08-10	No Fish Caught	0		
Greer Creek	2	15.0	clear	2	2023-08-10	Sucker	3	65	70
Greer Creek	2	15.0	clear	2	2023-08-10	Lake Chub	3	65	70
Greer Creek	2	15.0	clear	2	2023-08-10	Northern Pikeminnow	4	50	105
Greer Creek	1	10.3	clear	1	2023-09-09	Sucker	1	75	75
Greer Creek	1	10.3	clear	2	2023-09-09	Sucker	1	70	70
Greer Creek	2	9.5	clear	1	2023-09-09	No Fish Caught	0		
Greer Creek	2	9.5	clear	2	2023-09-09	No Fish Caught	0		
Greer Creek	2	9.5	clear	3	2023-09-09	No Fish Caught	0		

Appendix 3. Fish caught during the 2023 sampling season continued.

Creek	Site	Water temp	Turbidity	Trap #	Survey Date	Species	#	Min_length (mm)	Max_length (mm)
Twin Creek	1	16.0	clear	1	2023-08-10	No Fish Caught	0		
Twin Creek	2	9.5	clear	1	2023-08-10	Chinook Salmon	6	45	75
Twin Creek	2	4.9	clear	1	2023-09-09	Chinook Salmon	6	65	75
Twin Creek	2	4.9	clear	1	2023-09-09	Rainbow Trout	2	50	60
Swanson Creek	1	12.3	clear	1	2023-08-10	Rainbow Trout	1	45	45
Swanson Creek	1	12.3	clear	2	2023-08-10	Sucker	18	60	100
Swanson Creek	2	12.8	clear	1	2023-08-10	No Fish Caught	0		
Swanson Creek	2	12.8	clear	2	2023-08-10	Chinook Salmon	1	60	60
Swanson Creek	1	14.0	clear	1	2023-09-09	Sucker	4	80	85
Swanson Creek	1	14.0	clear	2	2023-09-09	Sucker	35	70	100
Swanson Creek	1	14.0	clear	2	2023-09-09	Chinook Salmon	3	60	70
Swanson Creek	2	11.0	clear	1	2023-09-09	Chinook Salmon	1	70	70
Swanson Creek	2	11.0	clear	2	2023-09-09	Chinook Salmon	9	65	70