MVIHES
Mid Vancouver Island Habitat Enhancement Society

Shelly Creek Coho Smolt Trap Report:
2020 and 2021

Prepared for: Fisheries and Oceans Canada

Public Involvement Program (Comox)

Stock Assessment Program (Nanaimo)

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Abstract

Shelly Creek provides an important (over winter) sanctuary for juvenile Coho and Trout rearing in the Englishman River. In 2020 and 2021, a downstream smolt trap was installed into lower Shelly Creek, to monitor the health of the Coho smolt populations that over winter there. This smolt trapping study has been ongoing for ten years and represents an important long-term biological dataset including factors that influence seasonal migrations, such as creek flows, weather and water temperatures. The results from these two trapping seasons, reveal the variability (in Coho counts) between seasons, where the average smolt count per day in 2020 was over two times the amount recorded in 2021. Trends over the last 10 years suggest a possible cyclical large migration year followed by a small migration year.

In the spring of 2021, MVIHES partnered with the British Columbia Conservation Foundation (hereafter known as BCCF) to assist in the implementation of a project entitled “Determination of Bottlenecks Limiting Wild and Enhanced Juvenile Salmon and Steelhead Production in BC using PIT tags and Spatially Comprehensive Arrays.” Funded by the Pacific Salmon Foundation, staff from BCCF tagged a majority of downstream smolts counted at the fence.

Introduction

Coho smolt migration studies have been conducted in Shelly Creek every spring since 2011 (Clough, 2011, 2012, 2013; Riordan, 2015, 2016, 2017; and Law 2018, 2019). The exception was in 2014 when a beaver flooded the lower creek, making trap installation impossible. Using a fence to capture salmonids as they move downstream, members of the Mid Vancouver Island Habitat Enhancement Society, under the guidance of the Department of Fisheries and Oceans, have been working in cooperation with other volunteer groups (Qualicum Beach Streamkeepers, Friends of French Creek and Mid Island Castaways) to compile fish and biological data on salmonid use of lower Shelly Creek. The objectives of the trapping program are as follows:

1. To determine the extent of Coho and Trout utilization of the lower Shelly Creek and Martindale Pond, during the winter/spring months
2. Increase public awareness of the Shelly Creek watershed and how it supports salmon production in the Englishman River.

In the spring months of 2020 and again in 2021, the smolt trap was installed and operated to complement previous assessments. This report is a compilation of two seasons of trap operations.

Methods

The smolt trap location, as in previous years, is 200m upstream from the Shelly Creek confluence with the Englishman River (Figure 1). It is placed just downstream of the Martindale Road culvert, at the outflow of a large wetland (Martindale Pond).

Figure 1. Location of the Smolt Counting Fence on Lower Shelly Creek

A "V-weir" design is configured using two 4'x8' long panels, composed of 2"x4" wooden frames covered with ¼" inch galvanized mesh, set onto the creek bed (Appendix IV-photo 3). A plastic apron is laid at the front of the fence panels to discourage fish migration around or through the fence. Sandbags are used to create wingwalls and assist in shoring up the fence during freshet flows. Fish are guided down the fence, into a "Big O" flexible pipe, where they are flushed into a trap box which is anchored into the stream bed with sandbags and wooden backstays.

During trap operations, the fence is checked daily for holes, undermining and cleaned of debris. The fence is installed in the same location and operated each year in a similar manner, as in previous years, allowing a year-by-year comparison of the results.

There is an assumption that the fish counts do not represent 100% of the smolt run. To achieve a higher level of accuracy would require "testing" of the fence's efficiency for capturing smolts through a mark and recapture. The reason this is not done here, is that the fence is operated by volunteers, who do not wish to stress the fish unduly.

Sampling methods and data collection procedures were the same as in previous years, although additional health and safety measures were implemented due to the COVID-19 pandemic. The trap box was checked daily by volunteers. A wooden baffle (installed to provide quiet holding water for fish) was removed from the box, to allow for easy netting of fish. Fish are scooped up using a broom-handled

knotless net, and visually inspected to determine species. Fish are poured from the net into a sampling tub (40cm x 40cm). Fish are then counted and removed using a small dipnet. A random selection of 10 Coho were measured to fork length (mm) for every 100 Coho smolts counted. Fork lengths are recorded for Coho and Trout on a Juvenile Salmonid Data Sheet (Appendix I). These daily records of Coho measurements are submitted to DFO as per Scientific License requirements. Copies are located on the MVIHES Google Drive.

Daily fish counts are recorded for Rainbow and Cutthroat Trout, Sculpin, and Stickleback. Water level and temperature data were also collected.

Identification of juvenile Trout at the trap remains difficult for volunteers. Cutthroat smolts are identified only if a slash under the throat is clearly visible (usually fish > 130mm). Smolts >130mm without a slash under the throat are identified as Rainbow Trout.

In 2020, and again in 2021, the smolt trap was installed in third week of March, to ensure trapping began prior to the peak in the downstream smolt movements. The smolt trap was removed in mid May each year. The decision to remove the trap is based on the following criteria:

- low daily fish counts,
- rising water temperatures
- low stream flows

On April 14, 2020 the trap box was modified to slow the velocity of water as it exited the trap by enlarging the mesh-covered opening.

On April 7, 2021 a second holding box was added as part of a collaboration with BCCF and Pacific Salmon Foundation. After Coho Smolts, Rainbow Trout, and Cutthroat Trout were counted and sampled by MVIHES volunteers, the fish would be transferred to the second holding box for PIT tagging by BCCF biologists.

Daily rainfall data and average monthly air temperature was acquired from the Environment Canada Weather Station at the Qualicum Beach Airport. Although rainfall records from Qualicum Beach Airport were missing for most of the 2020 study period.

As of November 2021, flow data was collected from a hydrometric station 1km upstream from the smolt trap along Shelly Creek. In past years, hydrometric data was collected from the Water Survey of Canada hydrometric station to monitor peak discharge of the Englishman River, however this data was not available for the 2020 or 2021 study periods.

Results

Downstream Fish Counts

2020 Counts

The total number of fish counted during the 56 days of trap operation was 3344 (Appendix II). The total count of Coho Smolts was 3155 and 11 Trout Smolts (9 Rainbow and 2 Cutthroat). Other fish species counted from the trap included Sculpin and Stickleback which are both included in the totals. The highest daily count of Coho Smolts was 341 recorded on April 19 (see Figure 2).

2021 Counts

The total number of fish counted during the 55 days of trap operation was 1910 (Appendix III). Total count of Coho Smolts was 1287, 40 Trout Smolts (38 Rainbow and 2 Cutthroat), and 373 Coho Fry. Other fish species counted from the trap included Sculpin, Stickleback, and Pumpkinseed which are also included in the totals. The highest daily count of Coho Smolts was 209 recorded on April 26 (see Figure 3).

Comparison of Fish Counts

When comparing the fish counts between 2020 and 2021 there are some differences in trapping operations (see Table 1). The trap in 2020 was started five days earlier and finished four days earlier than 2021. There was a significant drop in Coho Smolts observed in 2021, however there was also a substantial increase in Coho Fry observed in 2021 compared to 2020.

Table 1. Fish Count and Trapping Operational Summary for 2020 and 2021

	Coho Smolts	Trout Smolts	Coho Fry	Sculpin	Stickle back	Pumpkin seed	Total Fish	Trapping Operations Start / End	Number of Trapping Days
2020	3155	11	1	59	118	0	3344	March 16 – May 11	56
2021	1287	40	373	136	70	4	1910	March 20 – May 15	56

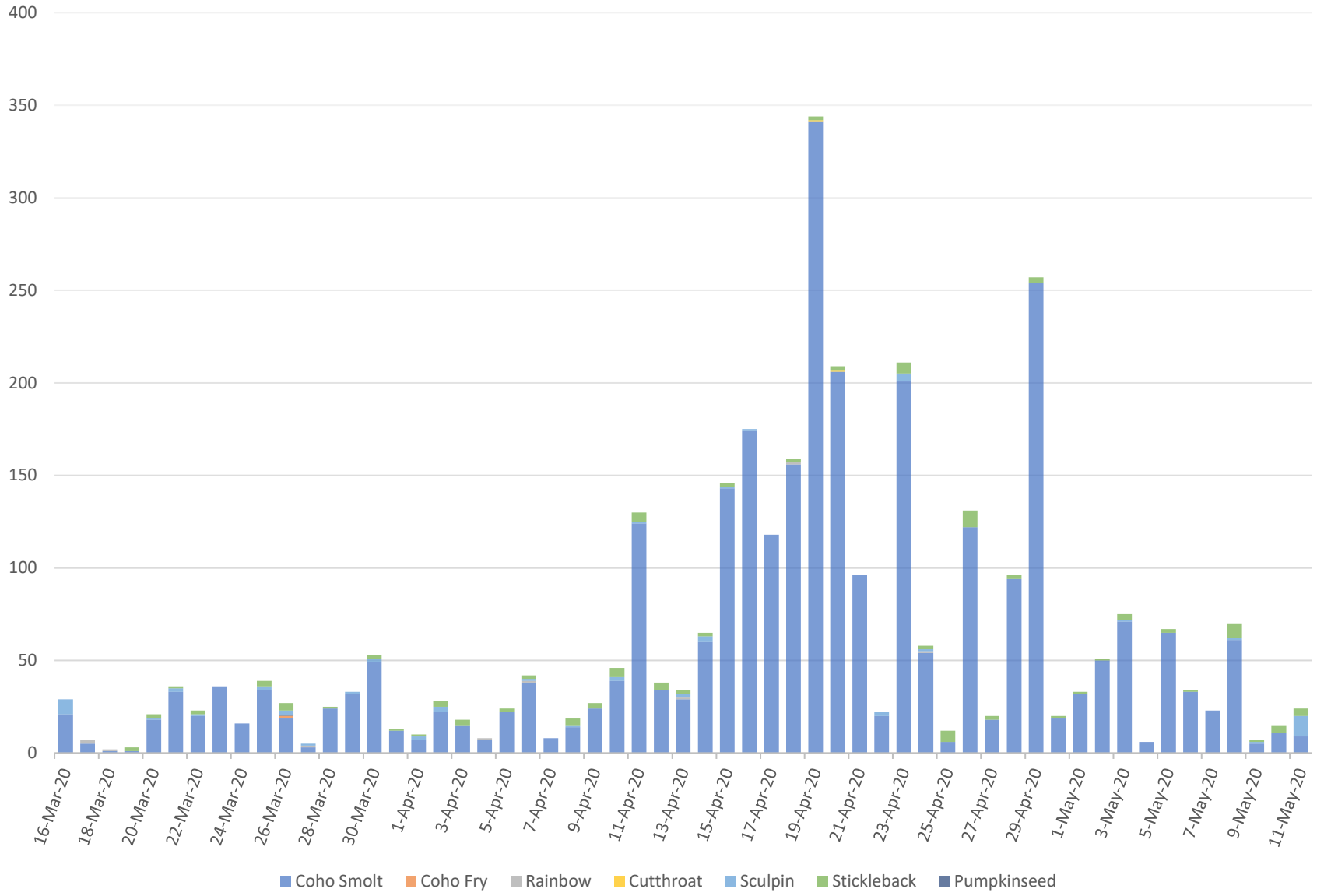

Figure 2. Shelly Creek Daily Trap Count by Species – 2020

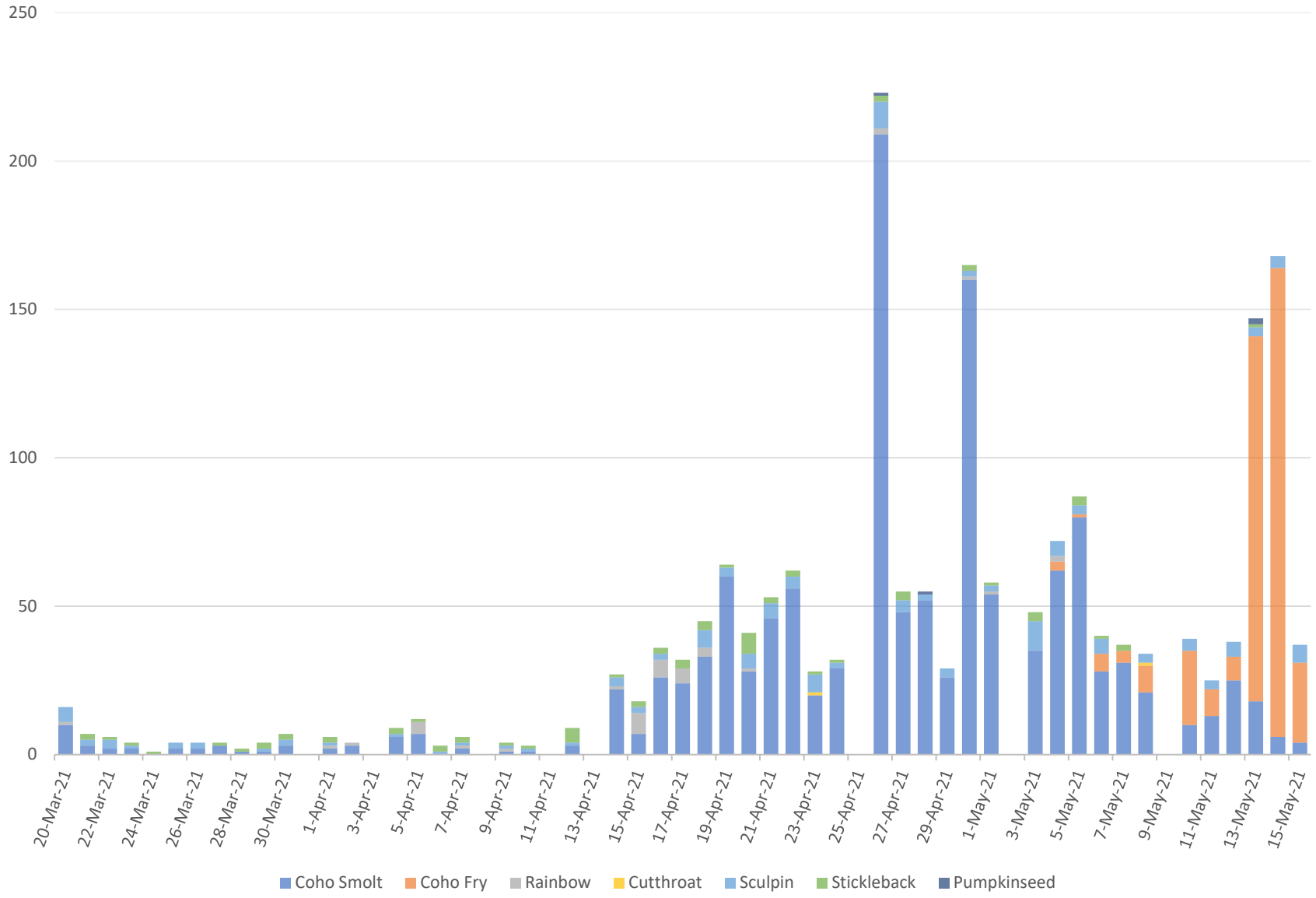

Figure 3. Shelly Creek Daily Trap Count by Species – 2021

Coho Smolt Sampling

2020 Samples

Fork lengths were measured on 654 Coho Smolts. The average fork length of Coho Smolts measured was 85mm. The largest Coho Smolt was 111mm recorded on April 27. The smallest Coho Smolt was 53mm recorded on April 15. The most common length frequency was between 85mm - 89mm with 27% of all Coho Smolts measured.

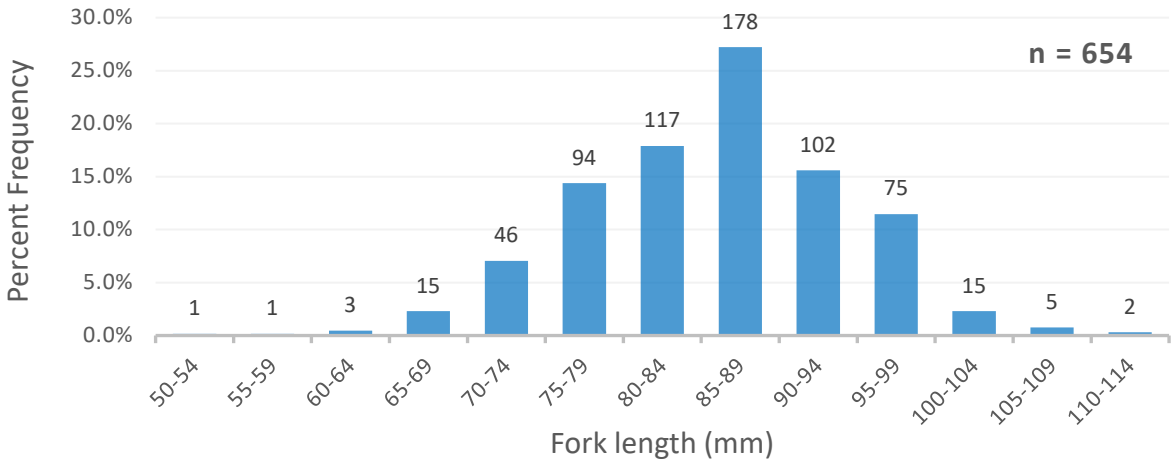

Figure 4. Length frequency of Coho Smolts in 2020

2021 Samples

Fork lengths were measured on 365 Coho Smolts. The average fork length of Coho Smolts measured was 88mm. The largest Coho Smolts were 115mm, totalling 4 fish, between April 7 – May 4. The smallest Coho Smolt was 35mm recorded on April 5. The most common length frequency was between 90mm - 94mm with 20% of all Coho Smolts measured.

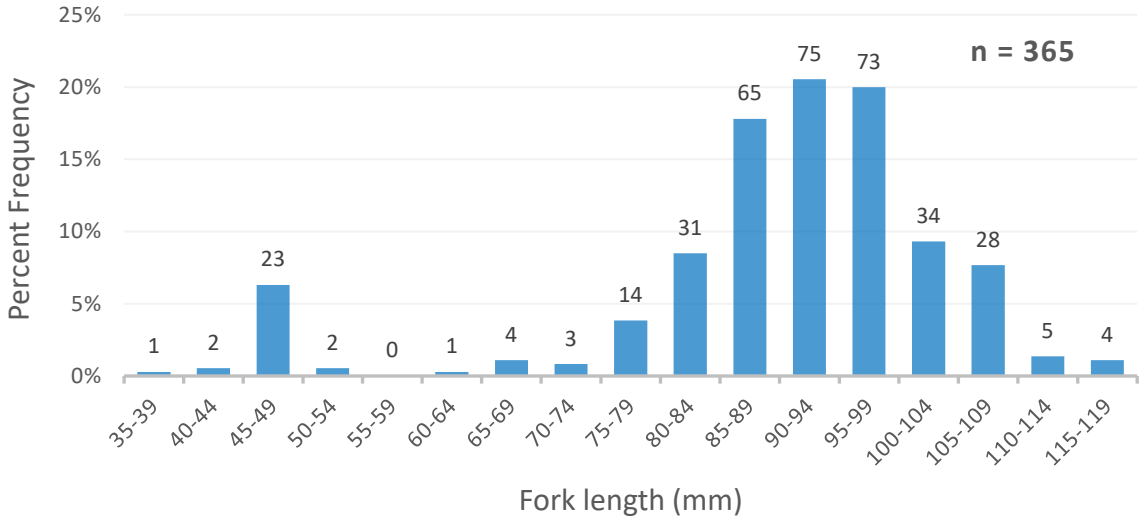

Figure 5. Length frequency of Coho Smolts in 2021

Trout Smolt Sampling

In 2020, fork lengths were measured on a total of 8 Trout Smolts (1 Cutthroat Trout and 7 Rainbow Trout). The average fork length of Trout Smolts measured was 92mm. The largest Trout Smolt was 150mm recorded on April 19. The smallest Trout Smolt was 60mm recorded on April 6.

In 2021, fork lengths were measured on a total of 31 Trout Smolts (1 Cutthroat Trout and 30 Rainbow Trout). The average fork length of Trout Smolts measured was 97mm. The largest Trout Smolt was 200mm recorded on April 15. The smallest Trout Smolt was 75mm recorded on April 15.

PIT Tagging

For part of the smolt trap operations in 2021, between April 7 to May 28, BCCF biologists and MVIHES volunteers captured (1203) and tagged (1198) fish as part of the BCSRIF Bottlenecks program (Atkinson & Middleton, 2021).

Table 2. Summary of fish PIT tagged by BCCF biologists

Number of Fish Tagged in Shelly Creek					
Year	**Coho Smolts**	**Cutthroat Trout**	**Rainbow Trout**	**Returned**	**Total**
2021	1164	4	30	5	1203

Stream Conditions during Trap Operations

2020 Trapping Period March 16 – May 11

The highest recorded water temperature was 12°C observed on April 20. The lowest recorded water temperature was 1°C observed on March 16. Rainfall records from Qualicum Beach Airport are missing between March 16 – May 5 with no rainfall observed between May 6 – 11.

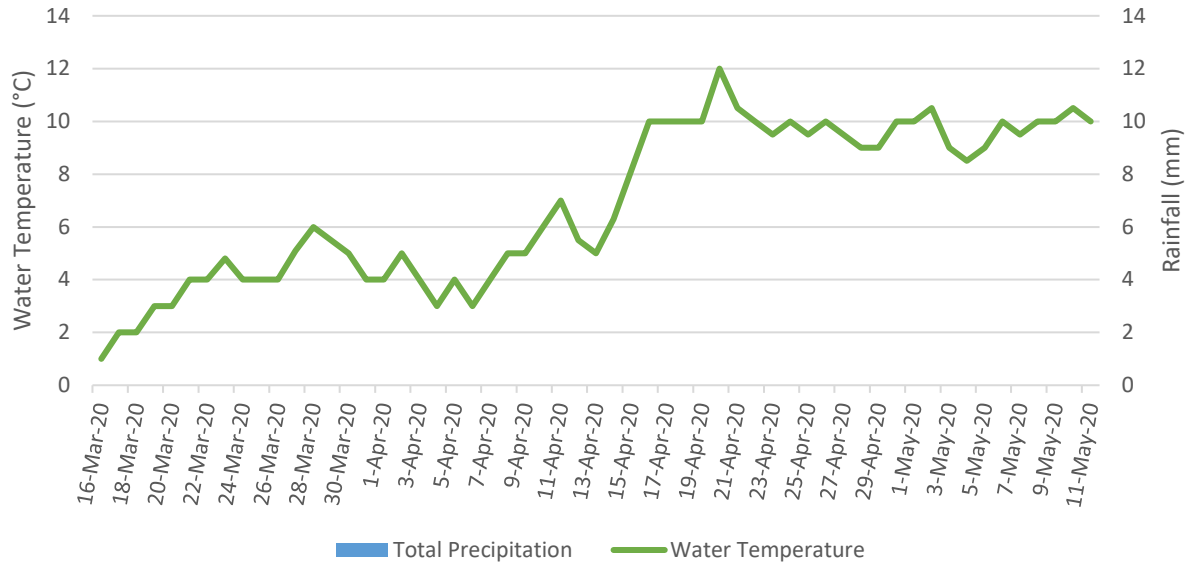

Figure 6. 2020 Daily Water Temperature Compared to Rainfall

2021 Trapping Period March 21 – May 15

There was a total of 28 days of precipitation during the 55 days of trap operation. The highest recorded water temperature was 11°C observed on May 13. The most precipitation recorded was 7.3mm observed on March 28 which was immediately followed by the lowest recorded water temperature of 4.5°C observed on March 29. Overall, water temperatures in Shelly Creek did not appear to be significantly impacted by rain events.

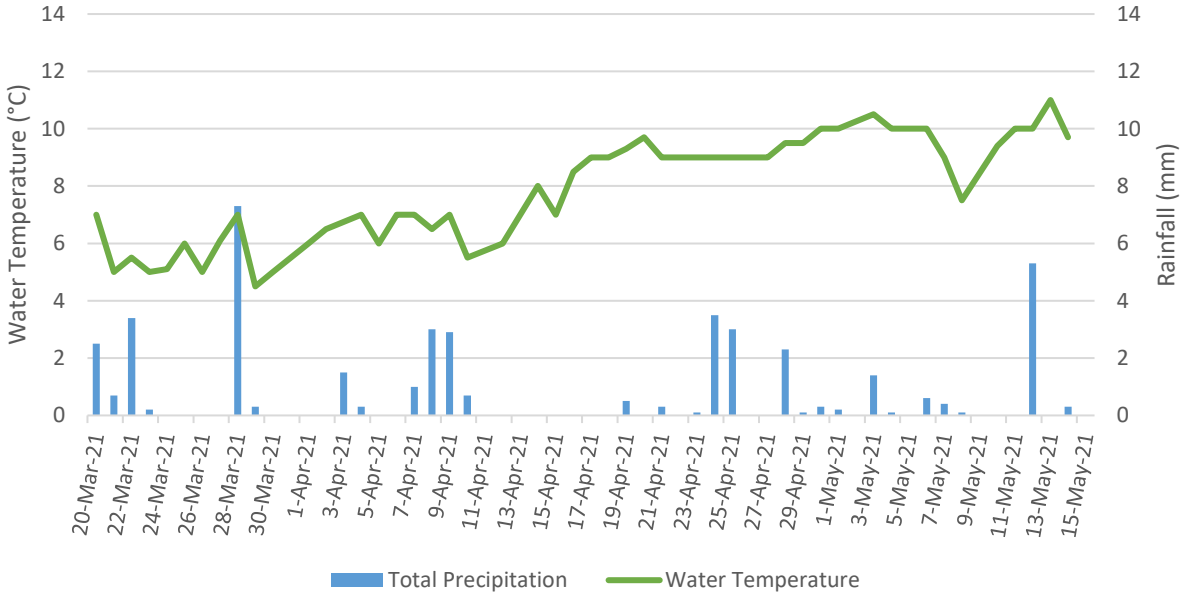

Figure 7. 2021 Daily Water Temperature Compared to Rainfall

Discussion

Comparison of Smolt Migration Counts

Daily Coho Smolt counts were higher in 2020 than in 2021 from the start of trap operation, but Trout Smolts in 2020 were at a six-year low.

Coho Smolt and Trout Smolt data has been collected at Shelly Creek for the past 10 years; with the exception of 2014. Despite varying start/end dates and number of trapping days, previous counts show possible evidence of a cyclical large migration year followed by a small migration year of Coho Smolts in Shelly Creek (see Table 2).

Table 3. Summary of Annual Coho Smolt and Trout Smolt Counts (2011 – 2021)

Year	Total Coho Smolts	Total Trout Smolts	Trapping Operation Start / End Dates	Number of Trapping Days
2011	2368	37	April 22 – June 4	43
2012	8094	42	April 15 – May 23	38
2013	7265	21	April 1 – May 26	56
2014	No Trap Operation Due to Flooding by Beaver Dam			
2015	1247	0	April 19 – May 26	38
2016	4313	69	April 8 – May 10	33
2017	755	153	March 25 – May 25	62
2018	7467	297	March 24 – May 21	59
2019	993	126	March 17 – May 10	55
2020	**3155**	**11**	**March 16 – May 11**	**56**
2021	**1287**	**40**	**March 21 – May 15**	**55**

Comparison of Weather, Temperature, and Flows

When comparing average daily temperature over the last four years it appears that observations in 2020 and 2021 are not abnormal. The highest average daily temperatures and rainfall totals were observed in 2018, with the lowest observed in 2019.

In 2015, it was suggested that the trigger for Coho Smolt migration was a water temperature of at least 8.5°C (Riordan, 2015). In 2020, the quantity of Coho Smolts migrating increased significantly as water temperatures in Shelly Creek increased beyond 7°C on April 11. Peak migration of Coho Smolts in 2020 was observed on April 19, with 319 Coho, and a water temperature of 10°C (see Figure 2 and Figure 6). In 2021, daily Coho Smolt counts remained low until water temperatures in Shelly Creek increased beyond 8°C on April 14 (see Figure 3 and Figure 7). While peak migration in 2019 was observed on April 26 and a water temperature of 9°C.

Despite counts in 2020 observing 1868 more Coho Smolts than in 2021, air temperatures in January and March were both colder with water temperatures at the start of trapping measured as low as 1°C, taking 31 days for water temperature to exceed the estimated ideal migration temperature of 8.5°C. Water temperature was more consistent in 2021, starting at 7°C and reaching 8.5°C in 24 days (see Table 4).

While it is common for Coho Fry to emerge between early March to late July, typically Coho don't hatch until water temperatures reach between 8.9°C - 10.7°C, over a duration of 38 – 48 days (Scott & Crossman, 1973). In 2021, the abundance of Coho Fry captured in the trap starting May 4 and peaking on May 14 is a sign of consistently warmer water temperatures in Shelly Creek or upstream in Martindale Pond (see Figure 3).

Table 4. Average Daily Air Temperature and Total Precipitation (2018 – 2021)

	Average Daily Air Temperature (°C)				Total Precipitation (mm)			
	2018	**2019**	**2020**	**2021**	**2018**	**2019**	**2020**	**2021**
January	4.5	4.6	4.0	4.4	228.0	125.4	N/A	146.0
February	3.0	-0.4	4.0	3.0	58.8	58.7	N/A	26.4
March	5.0	6.3	4.7	5.4	23.7	1.8	N/A	47.1
April	8.7	8.9	8.9	9.3	68.1	48.3	N/A	19.5
May	14.6	14.6	12.9	12.5	11.0	12.3	33.1*	21.8

*Total precipitation recorded is incomplete; only data available is between May 6 – 31

Unfortunately, it is difficult to make direct comparisons regarding rainfall totals between 2020 and 2021, impacting migration conditions as the Environment Canada weather station at Qualicum Beach Airport failed to record total precipitation between January 1 – May 5, 2020. Despite very high rainfall records in May 2020, this data is from after trapping operations had completed for the season and had no impact on smolt migration during the study period. In 2021, rainfall was lower than average in April, while rainfall recorded in March and May was much higher than past years average (see Table 4).

High winter water levels had previously been identified as another contributor to higher counts of Coho smolts. The Water Survey of Canada hydrometric station located on the Englishman River is missing data over the 2020 and 2021 season, so it is impossible to determine the quantity and severity of winter flood events that would have pushed Coho smolts to seek shelter in smaller tributaries like Shelly Creek from the Englishman River.

As flow measurements were now being captured along Shelly Creek during the 2021 trapping operations, it was now possible to compare the number of fish captured to the flow of water. As flow levels increased in Shelly Creek due to rain events, there would be an immediate drop in fish observed followed by an increase of fish as flows decreased at the smolt fence.

At the start of trapping operations, smolt counts remained low until flows decreased from highs of 0.1 m^3/s to under 0.04 m^3/s on April 14. Heavy rain on April 24 and 25 increased water flows significantly to 0.07 m^3/s in which no Coho smolts were recorded. This was immediately followed on April 26 by the highest daily count of Coho smolts during trapping operations (209 Coho) as flows decreased to 0.042 m^3/s. The next spike in Coho Smolt observations was on April 30 (160 Coho), two days after the next rain event and one day after water flows increased from 0.032 m^3/s to 0.045 m^3/s where no fish were recorded. After April 30, the flow never increased beyond 0.03 m^3/s and the number of Coho Smolts observed started to decrease until trap operations ended on May 15 (see Figure 7 & 8).

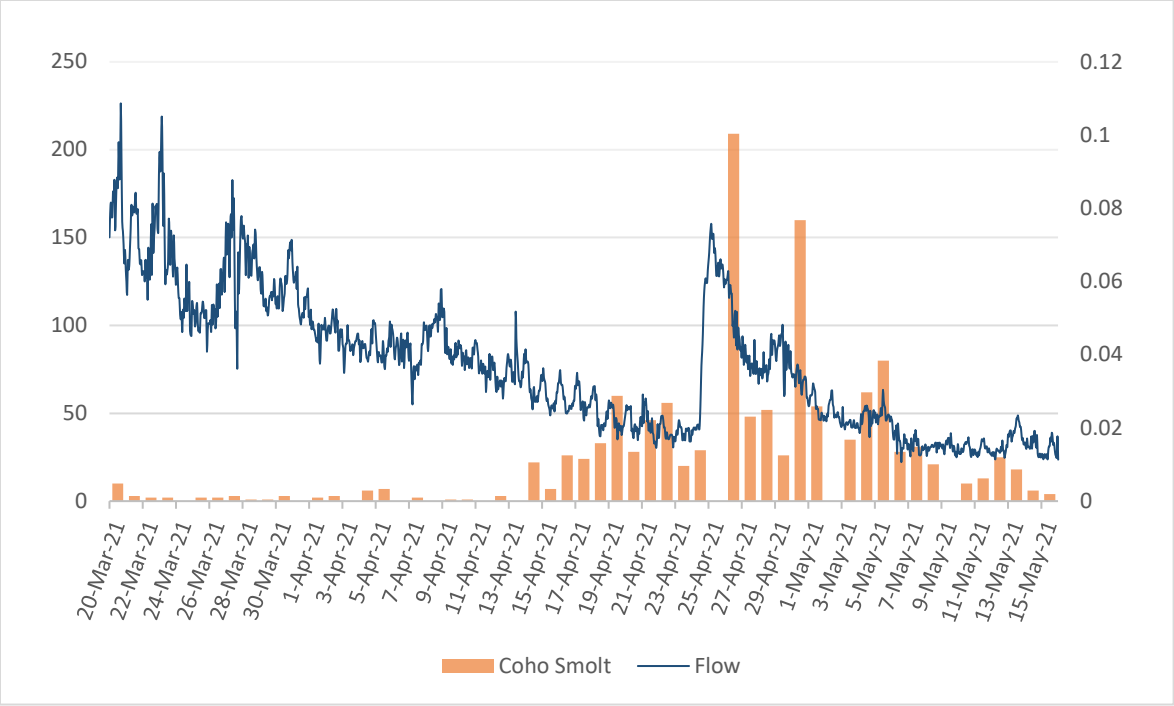

Figure 8. 2021 Daily Record of Shelly Creek Flow Compared to Coho Smolt Counts

Restoration of Martindale Pond

In past years the deteriorating physical condition of Martindale Pond had been identified as a source of reduced fish habitat and a possible cause of low fish counts (Law, 2020). The pond is located immediately upstream of the study site and provides overwintering habitat for Coho Smolts, Rainbow Trout, and Cutthroat Trout (MVIHES, 2020). The site had been overrun with invasive *Iris pseudacorus* (Yellow Flag Iris) and *Phalaris arundinacea* (Reed Canarygrass). Additionally, the pond was infilling with sediment as a result of bank erosion and annual winter flooding of the Martindale neighbourhood by the nearby Englishman River (MVIHES, 2020). In September 2020, Mid Vancouver Island Habitat Enhancement Society, with assistance from the Pacific Salmon Foundation and Mosiac Forest Management, excavated over 30 truckloads of sediment from the pond and installed erosion controls to prevent further sediment infilling (MVIHES, 2020).

It is unclear if the restoration of Martindale Pond has had a significant impact to Coho smolt survivability as the number of smolts counted in 2021 was less than in 2020. However, the high quantity of Coho fry observed in 2021 could be the result of restoration efforts and improved fish habitat (see Table 1).

The Condition Factor of Coho Smolts

Since 2015 fork lengths have been collected at the trap, the Coho Smolts sampled over the past 7 years appear to be trending smaller in size. Between 2015 and 2021 sampled Coho Smolts have ranged between 35 – 131mm and a variability of up to a 16mm year-over-year average fork length. 2020 has the smallest average length measured at 85mm and no fish exceeding 111mm. In 2021, the average

length of fish measured was 88mm, which is greater than both 2020 and 2018 but smaller than those recorded in 2015, 2016, 2017, and 2019. Additionally, the smallest Coho Smolt ever processed at the trap was in 2021 at 35mm (see Table 4).

Table 5. Comparison of Coho Smolt Fork Lengths (2015 – 2021)

Year	Normal Distribution (mm)	Mean (mm)	Range With Most Fish (mm)	Range
2015	59 - 118	89	84 - 88	59
2016	70 – 129	101	99 – 104	59
2017	71 - 131	101	101 – 107	60
2018	60 - 125	87	84 - 88	65
2019	70 - 120	96	90 - 95	50
2020	**53 – 111**	**85**	**85 - 89**	**58**
2021	**35 - 115**	**88**	**90 - 94**	**80**

Recommendations

1. Lower Shelly Creek should continue to be considered an important Coho Salmon and Trout producer and be protected from impacts of land development and urbanization.

2. A smolt trap study should be conducted in 2022 to continue to monitor the health of the Coho and Trout smolt populations.

3. Water levels permitting, the smolt trap should be installed before the water temperature reaches 8.5°C.

4. Continued monitoring of the Martindale Pond restoration in 2022 to determine whether the project had a positive impact Coho smolt output.

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Appendix I

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JUVENILE SALMONID DATA SHEET 2020

Shelly Creek @ Martindale				Page:		
Date:				Time:		
Observers:						
Level: cm		Water Temp:		Air Temp:		
Remarks and Observations:						
NOTE: Measure 10, Tally 90, to measure 10% of coho. Also measure any outliers. (Any coho <7 cm or >13 cm.)						
Coho measure 10, count 90				Other Species (List and tally)		
Length mm			Tally	Trout length		Tally
1		10				
2		20				
3		30				
4		40				
5		50				
6		60		Cutthroat length		
7		70				
8		80				
9		90				
10		100				
1		110				
2		120		Stickleback		
3		130		Mort:		
4		140		Sculpin		
5		150		Crayfish		
6		160		Frogs		
7		170		Other Species (List and tally)		
8		180				
9		190				
10		200				
1		210				
2		220				

Use reverse side if you run out of room.

Appendix II

2020 Fence Count

Date	Coho Smolt	Coho Fry	Rainbow	Cutthroat	Sculpin	Stickleback	Total Fish
16-Mar-20	21	0	0	0	8	0	29
17-Mar-20	5	0	2	0	0	0	7
18-Mar-20	1	0	1	0	0	0	2
19-Mar-20	1	0	0	0	0	2	3
20-Mar-20	18	0	0	0	1	2	21
21-Mar-20	33	0	0	0	2	1	36
22-Mar-20	20	0	0	0	1	2	23
23-Mar-20	36	0	0	0	0	0	36
24-Mar-20	16	0	0	0	0	0	16
25-Mar-20	34	0	0	0	2	3	39
26-Mar-20	19	1	0	0	3	4	27
27-Mar-20	3	0	1	0	1	0	5
28-Mar-20	24	0	0	0	0	1	25
29-Mar-20	32	0	0	0	1	0	33
30-Mar-20	49	0	0	0	2	2	53
31-Mar-20	12	0	0	0	0	1	13
1-Apr-20	7	0	0	0	2	1	10
2-Apr-20	22	0	0	0	3	3	28
3-Apr-20	15	0	0	0	0	3	18
4-Apr-20	7	0	1	0	0	0	8
5-Apr-20	22	0	0	0	0	2	24
6-Apr-20	38	0	1	0	1	2	42
7-Apr-20	8	0	0	0	0	0	8
8-Apr-20	14	0	0	0	1	4	19
9-Apr-20	24	0	0	0	0	3	27
10-Apr-20	39	0	0	0	2	5	46
11-Apr-20	124	0	0	0	1	5	130

12-Apr-20	34	0	0	0	0	4	38
13-Apr-20	29	0	1	0	2	2	34
14-Apr-20	60	0	0	0	3	2	65
15-Apr-20	143	0	0	0	1	2	146
16-Apr-20	174	0	0	0	1	0	175
17-Apr-20	118	0	0	0	0	0	118
18-Apr-20	156	0	1	0	0	2	159
19-Apr-20	341	0	0	1	0	2	344
20-Apr-20	206	0	0	1	0	2	209
21-Apr-20	96	0	0	0	0	0	96
22-Apr-20	20	0	0	0	2	0	22
23-Apr-20	201	0	0	0	4	6	211
24-Apr-20	54	0	1	0	1	2	58
25-Apr-20	6	0	0	0	0	6	12
26-Apr-20	122	0	0	0	0	9	131
27-Apr-20	18	0	0	0	0	2	20
28-Apr-20	94	0	0	0	0	2	96
29-Apr-20	254	0	0	0	0	3	257
30-Apr-20	19	0	0	0	0	1	20
1-May-20	32	0	0	0	0	1	33
2-May-20	50	0	0	0	0	1	51
3-May-20	71	0	0	0	1	3	75
4-May-20	6	0	0	0	0	0	6
5-May-20	65	0	0	0	0	2	67
6-May-20	33	0	0	0	0	1	34
7-May-20	23	0	0	0	0	0	23
8-May-20	61	0	0	0	1	8	70
9-May-20	5	0	0	0	1	1	7
10-May-20	11	0	0	0	0	4	15
11-May-20	9	0	0	0	11	4	24
Totals	**3155**	**1**	**9**	**2**	**59**	**118**	**3344**

Appendix III

2021 Fence Count

Date	Coho Smolt	Coho Fry	Rainbow	Cutthroat	Sculpin	Stickleback	Pumpkinseed	Total Fish
20-Mar-21	10	0	1	0	5	0	0	16
21-Mar-21	3	0	0	0	2	2	0	7
22-Mar-21	2	0	0	0	3	1	0	6
23-Mar-21	2	0	0	0	1	1	0	4
24-Mar-21	0	0	0	0	0	1	0	1
25-Mar-21	2	0	0	0	2	0	0	4
26-Mar-21	2	0	0	0	2	0	0	4
27-Mar-21	3	0	0	0	0	1	0	4
28-Mar-21	1	0	0	0	0	1	0	2
29-Mar-21	1	0	0	0	1	2	0	4
30-Mar-21	3	0	0	0	2	2	0	7
1-Apr-21	2	0	1	0	1	2	0	6
2-Apr-21	3	0	1	0	0	0	0	4
4-Apr-21	6	0	0	0	1	2	0	9
5-Apr-21	7	0	4	0	0	1	0	12
6-Apr-21	0	0	0	0	1	2	0	3
7-Apr-21	2	0	1	0	1	2	0	6
9-Apr-21	1	0	1	0	1	1	0	4
10-Apr-21	1	0	0	0	1	1	0	3
12-Apr-21	3	0	0	0	1	5	0	9
14-Apr-21	22	0	1	0	3	1	0	27
15-Apr-21	7	0	7	0	2	2	0	18
16-Apr-21	26	0	6	0	2	2	0	36
17-Apr-21	24	0	5	0	0	3	0	32
18-Apr-21	33	0	3	0	6	3	0	45
19-Apr-21	60	0	0	0	3	1	0	64
20-Apr-21	28	0	1	0	5	7	0	41

21-Apr-21	46	0	0	0	5	2	0	53
22-Apr-21	56	0	0	0	4	2	0	62
23-Apr-21	20	0	0	1	6	1	0	28
24-Apr-21	29	0	0	0	2	1	0	32
26-Apr-21	209	0	2	0	9	2	1	223
27-Apr-21	48	0	0	0	4	3	0	55
28-Apr-21	52	0	0	0	2	0	1	55
29-Apr-21	26	0	0	0	3	0	0	29
30-Apr-21	160	0	1	0	2	2	0	165
1-May-21	54	0	1	0	2	1	0	58
3-May-21	35	0	0	0	10	3	0	48
4-May-21	62	3	2	0	5	0	0	72
5-May-21	80	1	0	0	3	3	0	87
6-May-21	28	6	0	0	5	1	0	40
7-May-21	31	4	0	0	0	2	0	37
8-May-21	21	9	0	1	3	0	0	34
10-May-21	10	25	0	0	4	0	0	39
11-May-21	13	9	0	0	3	0	0	25
12-May-21	25	8	0	0	5	0	0	38
13-May-21	18	123	0	0	3	1	2	147
14-May-21	6	158	0	0	4	0	0	168
15-May-21	4	27	0	0	6	0	0	37
Total	**1287**	**373**	**38**	**2**	**136**	**70**	**4**	**1910**

Appendix IV

Smolt trap installation, March 15, 2020

Coho fry, April 5, 2021