Scully Creek Sockeye Run

August – October 2021

Lakelse Watershed
Stewards Society

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Introduction:

Lakelse Lake is located approximately 20 km south of Terrace, BC and is part of the Skeena River watershed. Lakelse Lake flows through the Lakelse River, eventually draining into the Skeena River approximately 18 km southwest of Terrace. The Lakelse watershed provides significant spawning habitat for sockeye salmon. The Skeena River watershed supports 28 known wild sockeye stocks, of which a significant amount spawn within the Lakelse watershed. The three tributaries flowing into Lakelse Lake that offer the majority of spawning habitat for sockeye salmon are Williams Creek, Hatchery Creek, and Schulbuckhand (Scully) Creek. Since Scully Creek is often frequented by grizzly bears, especially during sockeye spawning season, an underwater camera was installed to capture adult sockeye numbers rather than performing manual spawning surveys. The camera was first utilized in 2011 and has been used to monitor annual salmon migrations in Scully Creek since then.

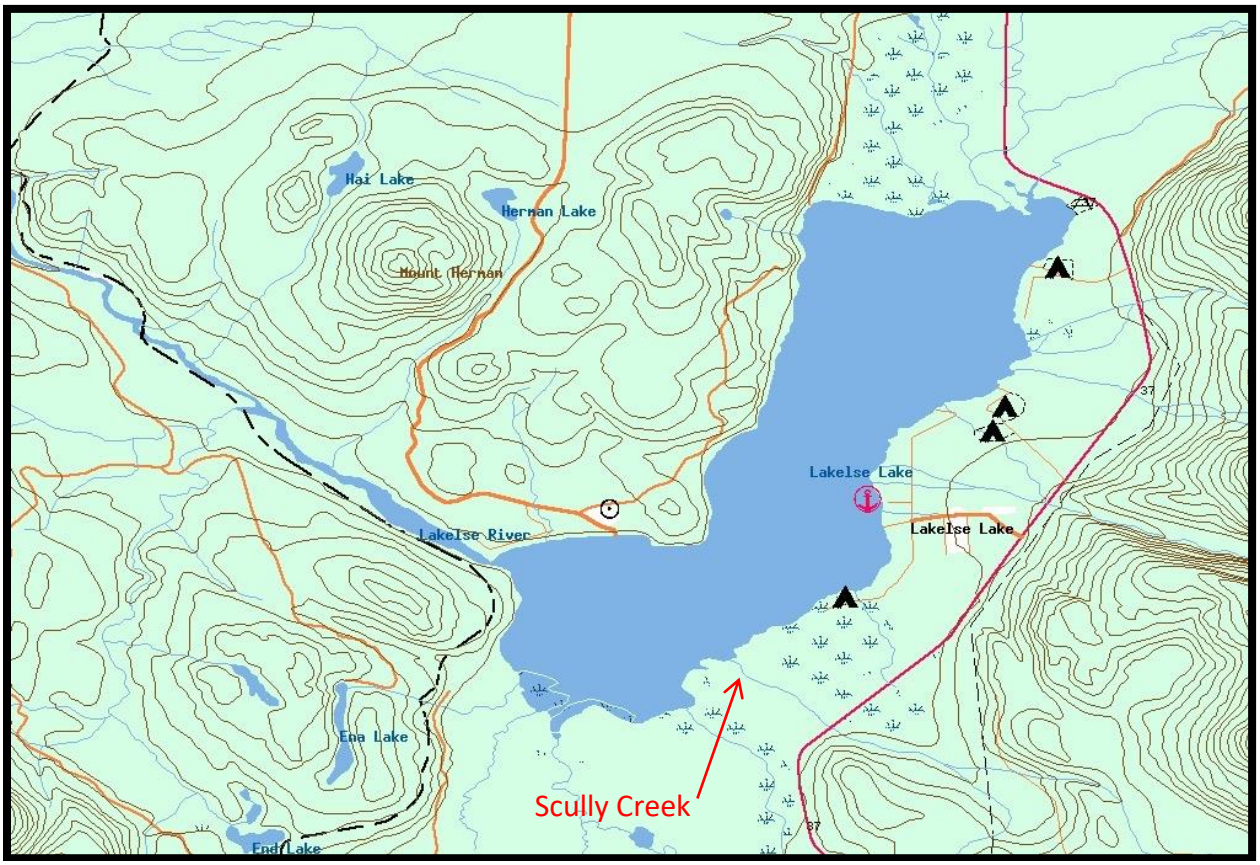

Figure 1. Map of Lakelse Lake area showing the location of Schulbuckhand (Scully Creek) and the underwater camera.

Methods:

On August 11th, 2021, an underwater camera with a motion sensor was installed in Scully Creek to monitor the annual migration of adult sockeye salmon. The camera's motion sensor was set to record footage when triggered by a fish. A fish fence was installed downstream of the camera

to funnel the fish past the motion sensor, ensuring accuracy of sockeye counts. Plastic mesh was installed on top of the creek substrate directly upstream of the fish fence to deter fish from spawning in front of the camera which would cause observational difficulties from increased turbidity and fish traffic in the camera's view. Regular maintenance occurred to clear the fish fence of debris, especially during high water events. Sockeye footage was recorded until September 28th, 2021. The footage was used to count the number of adult sockeye migrating upstream to spawn in Scully Creek. The camera's motion sensor was set to begin recording footage when the sensor was triggered by a fish; however, the sensor was hypersensitive to nighttime conditions and most of the recorded footage did not contain any fish. Technicians recorded the sex of fish when possible.

Figure 2. Images of male (left) and female (right) sockeye captured by Scully camera.

Figure 3. Images of grizzly bear paws (left) and a beaver (right) captured by Scully camera.

Data Analysis:

Total counts were generated for male and female sockeye traveling upstream past the camera's view from August 12th to September 28th. Some fish were observed swimming downstream and upstream multiple times past the camera. This behaviour was taken into consideration to avoid

double counting any adult sockeye migrating into Scully Creek. Camera issues and view obstructions during the monitoring program caused some gaps (6 full days and 6 partial days) in data collection. Count values were estimated for full days of missed footage based on averages from surrounding days (as seen in red in Table 1.).

Results:

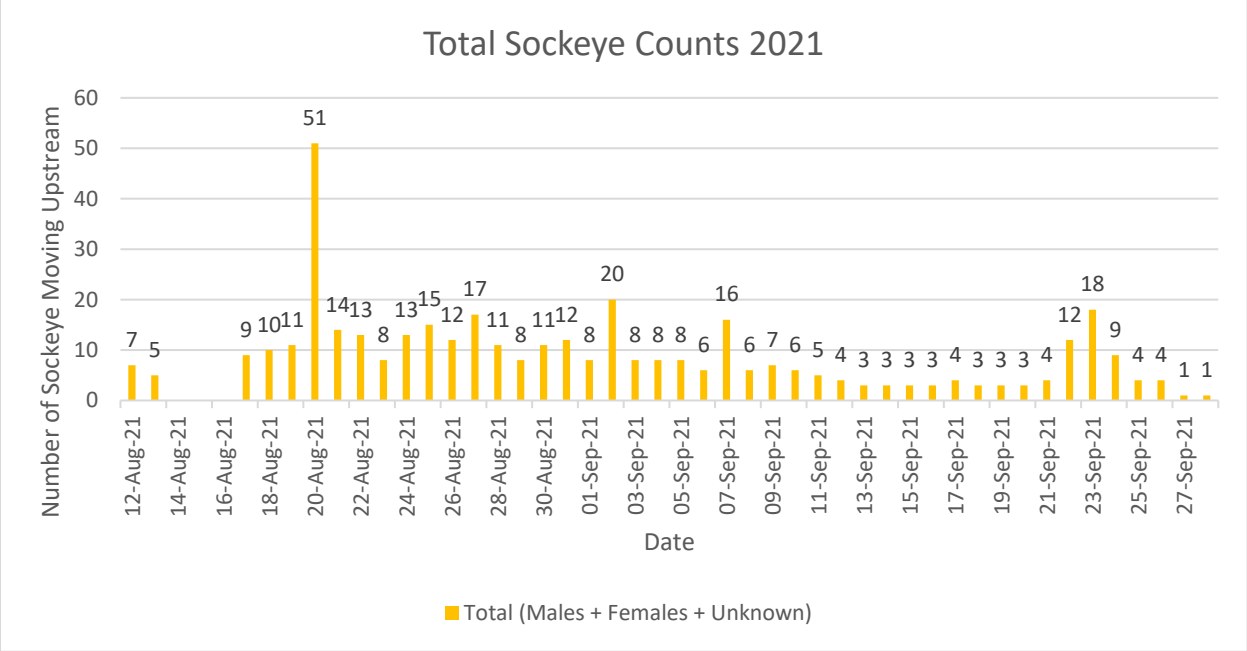

Figure 4. Total counts for sockeye in 2021, by date.

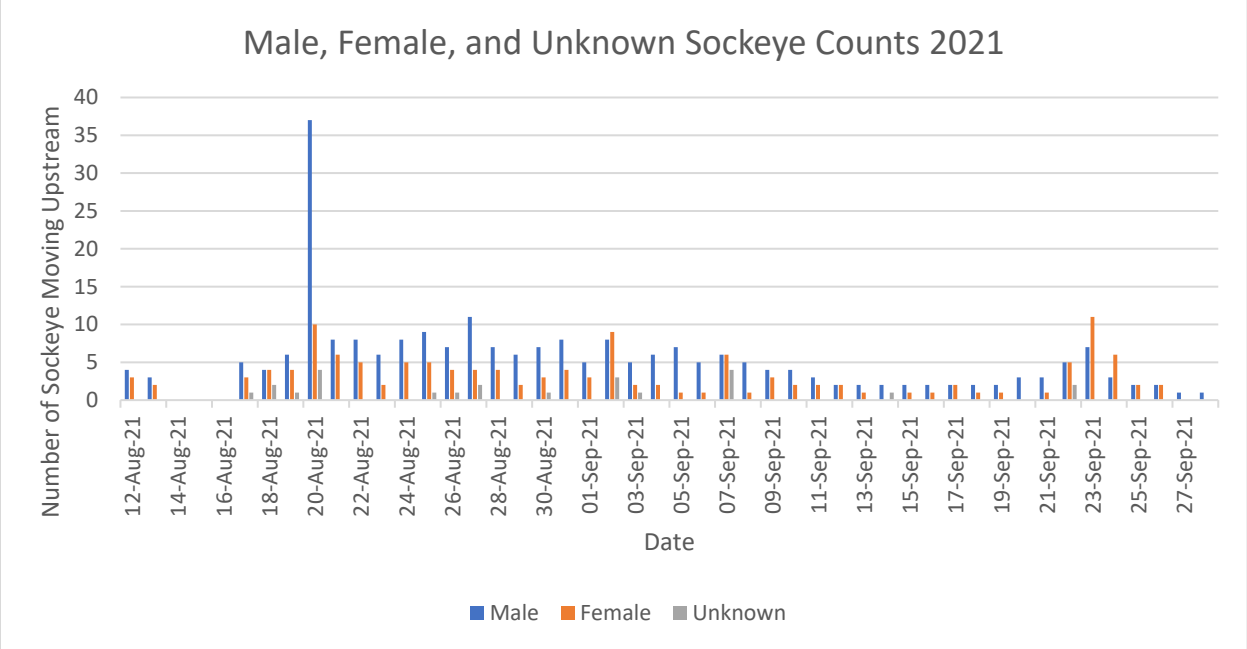

Figure 5. Total male, female, and unknown counts for sockeye in 2021, by date.

Table 1. Scully Creek daily total counts of male, female, and unknown sockeye in 2021.

Date	Male	Female	Unknown	Total	Notes
12-Aug-21	4	3		7	Fish circling camera, but 5 distinct fish.
13-Aug-21	3	2		5	
17-Aug-21	5	3	1	9	
18-Aug-21	4	4	2	10	
19-Aug-21	6	4	1	11	
20-Aug-21	37	10	4	51	
21-Aug-21	8	6		14	
22-Aug-21	8	5		13	
23-Aug-21	6	2		8	Partial day missed – camera issue
24-Aug-21	8	5		13	
25-Aug-21	9	5	1	15	Partial day missed – obstructed view
26-Aug-21	7	4	1	12	
27-Aug-21	11	4	2	17	1 male is a jack.
28-Aug-21	7	4		11	
29-Aug-21	6	2		8	1 male is a jack.
30-Aug-21	7	3	1	11	
31-Aug-21	8	4		12	
01-Sep-21	5	3		8	
02-Sep-21	8	9	3	20	Partial day missed – camera issue
03-Sep-21	5	2	1	8	
04-Sep-21	6	2		8	Low visibility
05-Sep-21	7	1		8	
06-Sep-21	5	1		6	
07-Sep-21	6	6	4	16	
08-Sep-21	5	1		6	
09-Sep-21	4	3		7	
10-Sep-21	4	2		6	
11-Sep-21	3	2		5	
12-Sep-21	2	2		4	
13-Sep-21	2	1		3	
14-Sep-21	2	0	1	3	
15-Sep-21	2	1		3	Full day missed – obstructed view
16-Sep-21	2	1		3	Full day missed – obstructed view
17-Sep-21	2	2		4	Partial day missed – obstructed view
18-Sep-21	2	1		3	Full day missed – obstructed view
19-Sep-21	2	1		3	Full day missed – obstructed view
20-Sep-21	3	0		3	Partial day missed – obstructed view
21-Sep-21	3	1		4	Partial day missed – obstructed view
22-Sep-21	5	5	2	12	
23-Sep-21	7	11		18	
24-Sep-21	3	6		9	
25-Sep-21	2	2		4	Full day missed – camera issue
26-Sep-21	2	2		4	Full day missed – camera issue
27-Sep-21	1			1	
28-Sep-21	1			1	
TOTAL	**245**	**138**	**24**	**407**	

Notable Dates:

First Sockeye Observed in Scully 2021: August 12th
Highest Run Day in 2021: August 20th
Last Sockeye Observed in 2021: September 28th

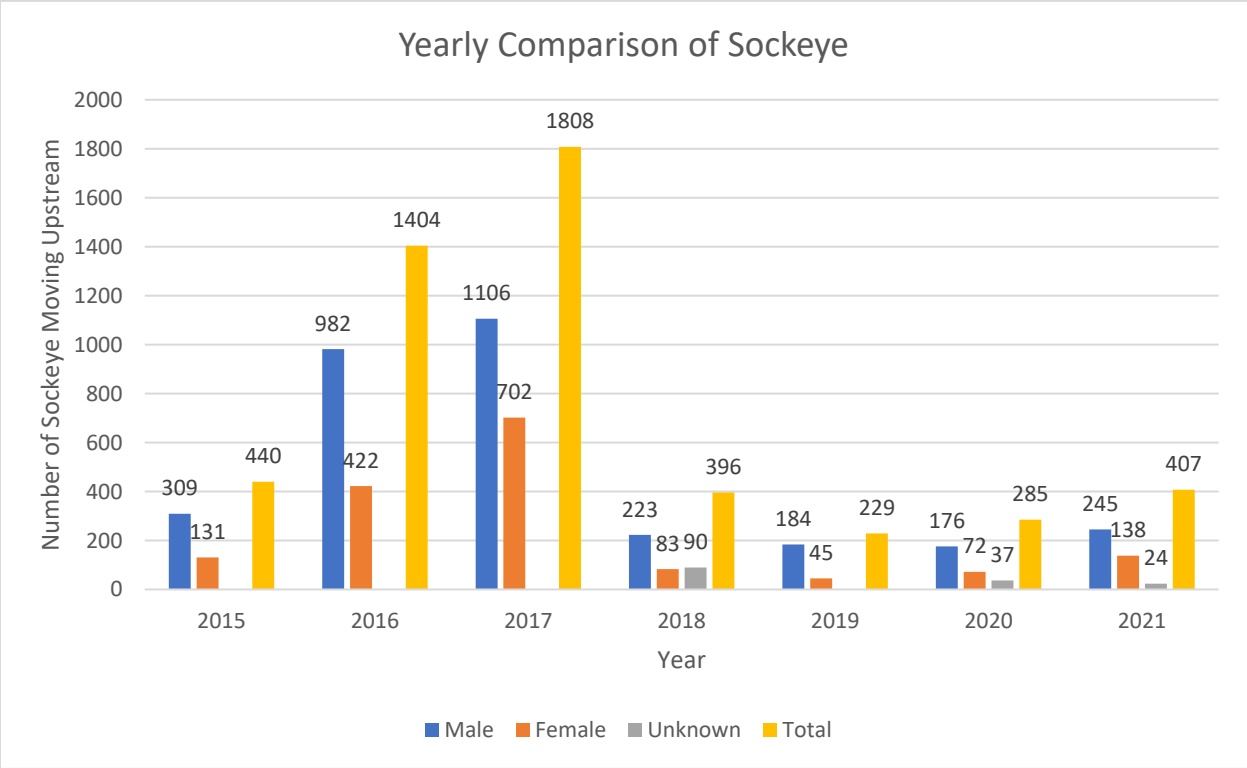

Figure 6. Yearly comparison of sockeye male, female, unknown and totals from 2015 to 2021.

Table 2. Notable dates and totals from 2015-2021.

Year	First Sockeye	Highest Run Day	Last Sockeye	Total
2015	August 14th	September 7th	September 16th	440
2016	August 15th	August 23rd	September 22nd	1404
2017	August 14th	August 21st	September 28th	1808
2018	August 20th	September 11th	September 29th	396
2019	August 21st	September 18th	October 8th	229
2020	August 12th	September 21st	October 5th	285
2021	August 12th	August 20th	September 28th	407

Conclusion:

A total of 407 sockeye were counted during the monitoring period in 2021. 245 individuals were identified as male, 138 as female, and 24 were unknown. The first sockeye was observed on August 12th and the last sockeye migrated through on September 28th. The peak number of sockeye observed throughout this year's migration was on August 20th. We have consistently observed more males migrating into Scully Creek than females in all seven years that this

program has run. The dates of the first sockeye migrating up Scully Creek have not varied significantly throughout the duration of this program; however, there has been variation in dates that the last sockeye has migrated past the camera. There does seem to be a few separate peaks in the number of fish entering the stream throughout the run.

The camera often captures footage of species other than sockeye that pass through the area as well. In 2021, the camera captured footage of a grizzly bear, a beaver, a duck, and other fish species.

Sockeye counts in 2018 and continuing into 2021 are close in numbers but are significantly lower than the 2016/17 escapements in Scully Creek. It would be interesting to compare the numbers with Williams Creek sockeye to see if there is a similar trend.