

# Wild Juvenile Salmonid Monitoring Program Broughton Archipelago 2019

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## Summary

Beach seine sampling was conducted on behalf of MOWI Canada West and Cermaq Canada in the Broughton Archipelago, BC in 2019. Sampling was completed to monitor sea lice abundance, prevalence and intensity on juvenile wild salmon and threespine stickleback within the Broughton Archipelago in support of the Aquaculture Stewardship Certification process for finfish aquaculture sites in the area.

Sampling was conducted during two separate sampling events in April and June 2019, selected to roughly coincide with the estimated peak outmigration period of juvenile salmonids. A total of 45 sites were selected for sampling in 2019. Locations of two of the sample sites had not been finalized by the April sampling period, so 43 sites were sampled in during the April 2019 sampling period. Mechanical issues with the boat motor during the June 2019 sampling period resulted in a reduction of sampling to 32 of the 45 sites.

Thirty individuals from each target fish species or the total number of captured individuals from each target species (if less than 30 were captured) were collected from each of the sites during the sampling events. Total catch numbers of each species were recorded. Surface water temperature and salinity were recorded at each site during each sampling event.

Collected sample fish were frozen and delivered to the Center for Aquatic Health Sciences (CAHS) for laboratory analysis. Sea lice infestation data was tabulated by CAHS and provided to Mainstream Biological Consulting for reporting. Sea lice observed on the individual fish specimens during laboratory analysis were identified as either *Lepeophtheirus spp.* or *Caligus sp.* These lice are assumed to be *L. salmonis* and *C. clemensi* due to the lack of documented infestation of Pacific salmon by other species. The lice were recorded by life stage and the sex of pre-adult or adult motile lice was determined.

This data summary report documents the observed sea lice infestation rate on retained wild juvenile salmon and threespine stickleback collected in the Broughton Archipelago in 2019. A total of 504 individual samples underwent lab analysis for sea lice infestation including 246 chum salmon (*Oncorhynchus keta*), 230 pink salmon

(*Oncorhynchus gorbuscha*), 24 coho salmon (*Oncorhynchus kisutch*), one chinook salmon (*Oncorhynchus tshawytscha*) and three threespine stickleback (*Gasterosteus aculeatus*). No sockeye salmon (*Oncorhynchus nerka*) or Atlantic salmon (*Salmo salar*) were captured during sampling completed in the Broughton Archipelago in 2019. From the total sample population 130 individuals were infested with 327 sea lice. The calculated prevalence for the total sample population was 25.8 % and the sea lice abundance was 0.65 for the sample population collected in the Broughton Archipelago in 2019.

A total of 495 chum salmon were captured, representing 10.3 % of all captured samples. Of the 495 chum captured, 246 were kept for lab analysis for sea lice infestation. A total of 58 chum smolts were found to be infested with 122 lice resulting in a calculated prevalence of 23.6 % and an abundance of 0.50 for the chum salmon sample population.

A total of 4287 pink salmon were captured, representing 89.1 % of all captured samples. Of the 4287 pinks captured, 230 were kept for lab analysis for sea lice infestation. A total of 49 pink salmon were found to be infested with 101 lice resulting in a calculated prevalence of 21.3 % and an abundance of 0.44 for the pink salmon sample population.

A total of 24 coho salmon were captured, retained and analyzed for sea lice infestation. Of the 24 samples, 19 coho salmon were found to be infested by 59 lice resulting in a calculated prevalence of 79.2 % and an abundance of 2.46 for the coho salmon sample population.

A total of three threespine stickleback were captured, retained and analyzed for sea lice infestation. The three stickleback were infested with 42 sea lice, resulting in a species prevalence of 100 % and abundance of 14.0. The single chinook salmon captured during 2019 sampling in the Broughton Archipelago was infested with a total of three lice.

A total of 132 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 75 individuals and 195 *Caligus clemensi* sea lice were found on 93 of the samples analyzed in the lab (Appendix III). There were 38 samples that were infested with both *L. salmonis* and *C. clemensi* sea lice.

For the chum salmon sample population, a total of 53 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 35 juvenile chum salmon and 69 *Caligus clemensi* sea lice were found on 40 of the juvenile chum salmon analyzed in the lab. There were 17 juvenile chum salmon infested with both *L. salmonis* and *C. clemensi* sea lice.

For the pink salmon sample population, a total of 56 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 27 juvenile pink salmon and 45 *Caligus clemensi* sea lice were found on 31 of the juvenile pink salmon analyzed in the lab. There were 9 juvenile pink salmon infested with both *L. salmonis* and *C. clemensi* sea lice.

For the coho salmon sample population, a total of 13 *Lepeophtheirus salmonis* sea lice of various life stages were identified on nine juvenile coho salmon and 46 *Caligus clemensi* sea lice were found on 18 of the juvenile coho salmon analyzed in the lab. There were eight juvenile coho salmon infested with both *L. salmonis* and *C. clemensi* sea lice.

One *Lepeophtheirus salmonis* and two *Caligus clemensi* were found on the single chinook salmon collected during 2019 beach seine sampling in the Broughton Archipelago in 2019.

A total of nine *Lepeophtheirus salmonis* and 33 *Caligus clemensi* were identified on the three threespine stickleback collected in the Broughton Archipelago during the 2019 sample period.

The 2019 sampling represents the fourth year of monitoring in this area for ASC certification purposes. A comparison of the prevalence, abundance and average intensity of sea lice infestation by sea lice species found on chum and pink salmon was completed for sample data collected in the Broughton Archipelago between 2016 and 2019. This data is presented in the following summary tables with additional yearly comparisons of juvenile wild salmon monitoring results presented in Appendix IV.

Chum by Year	<b><i>Caligus clemensi</i></b>			<b><i>Lepeophtheirus salmonis</i></b>		
	Prevalence	Abundance	Average Intensity	Prevalence	Abundance	Average Intensity
2016 (n=512)	20.3 %	0.32	1.6	13.3 %	0.19	1.4
2017 (n=562)	17.4 %	0.31	1.8	11.0 %	0.14	1.3
2018 (n=281)	12.5 %	0.16	0.13	10.3 %	0.11	1.1
2019 (n=246)	16.3 %	0.28	1.7	14.2 %	0.22	1.5

Pink by Year	<b><i>Caligus clemensi</i></b>			<b><i>Lepeophtheirus salmonis</i></b>		
	Prevalence	Abundance	Average Intensity	Prevalence	Abundance	Average Intensity
2016 (n=430)	24.4 %	0.33	1.3	15.3 %	0.24	1.5
2017 (n=411)	15.1 %	0.23	1.5	6.6 %	0.09	1.4
2018 (n=356)	11.5 %	0.16	1.4	5.6 %	0.06	1.1
2019 (n=230)	13.5 %	0.20	1.5	11.7 %	0.24	2.1

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## 1.0 Introduction

During the spring of 2019, Mainstream Biological Consulting conducted beach seine sampling at sites in the Broughton Archipelago, BC to capture wild juvenile salmon and threespine stickleback (Figure 1). Sampling was completed on behalf of MOWI Canada West and Cermaq Canada in support of the Aquaculture Stewardship Council certification process for their aquaculture sites in the Broughton Archipelago. Sample collection occurred on April 10 – 13 and June 4 – 6, 2019. These dates were selected to roughly coincide with estimated peak outmigration period of juvenile salmonids. A total of 45 sites were selected for sampling in 2019. Locations of two of the sample sites had not been finalized by the April sampling period, so 43 sites were sampled during the April 2019 sampling period. Mechanical issues with the boat motor during the June 2019 sampling period resulted in a reduction of sampling to 32 of the 45 sites.

Parasitic copepods from the family Caligidae (sea lice) found in the coastal waters of British Columbia are divided into two genera: *Lepeophtheirus* and *Caligus*. Eleven species of *Lepeophtheirus* have been identified infesting fish in the Pacific Ocean, while only one species of *Caligus* (*Caligus clemensi*) has been identified (Margolis and Arthur 1979; McDonald and Margolis, 1995). *Caligus clemensi* infest an extremely wide range of natural hosts in the marine environment including salmonids and non-salmonids; while *L. salmonis* natural hosts on the Pacific coast have been found to include Pacific salmon, threespine stickleback and Pacific herring. *Lepeophtheirus* spp. sea lice found on salmonid specimens were assumed to be *L. salmonis* due to the lack of documented infestations of Pacific salmon by other *Lepeophtheirus* lice species (Jones and Nemec, 2004).

Both these Caligidae genera have similar life histories and developmental stages (Kabata, 1972; Johnson and Albright, 1991a). Sea lice hatch from eggs and go through two free-swimming naupilii stages before developing into an infectious free-swimming copepodid. At this point, the sea lice attach to their host and develop through four chalimus stages. The chalimus are non-motile and attach to their host by a frontal filament. The final chalimus stage terminates as the sea lice become motile and detach from their host. The sea lice move freely on the fish as they develop through a pre-adult stage before becoming reproductively viable adults.

Water temperature and salinity are two environmental variables that influence sea lice development, growth, survival and reproductive rate. In British Columbia, surface seawater temperatures range from approximately 6 °C to 13 °C. Research on sea lice abundance conducted in the Broughton Archipelago and elsewhere on the coast of British Columbia indicates that surface water temperature during the winter months does not appear to hinder the seasonal abundance of *L. salmonis* (Saksida et al. 2007a, b). The rate of development and the generation times for *C. elongates* are strongly temperature dependent (Tully 1992) and although this research has not been conducted, similar relationships with temperature are to be expected for *C. clemensi* (Jones and Johnson, 2015). Survival and development of *L. salmonis* is optimal in high salinity seawater. Under laboratory conditions copepodid survival was limited to conditions where salinity was greater than 10 ppt (Johnson and Albright, 1991b).

MOWI Canada West and Cermaq Canada requested monitoring of sea lice abundance, prevalence and intensity on juvenile wild salmon within the Broughton Archipelago in support of Aquaculture Stewardship Certification for their aquaculture sites within the area. This data summary report documents the observed sea lice infestation rates on retained juvenile salmonids and threespine stickleback collected in the Broughton Archipelago in 2019.



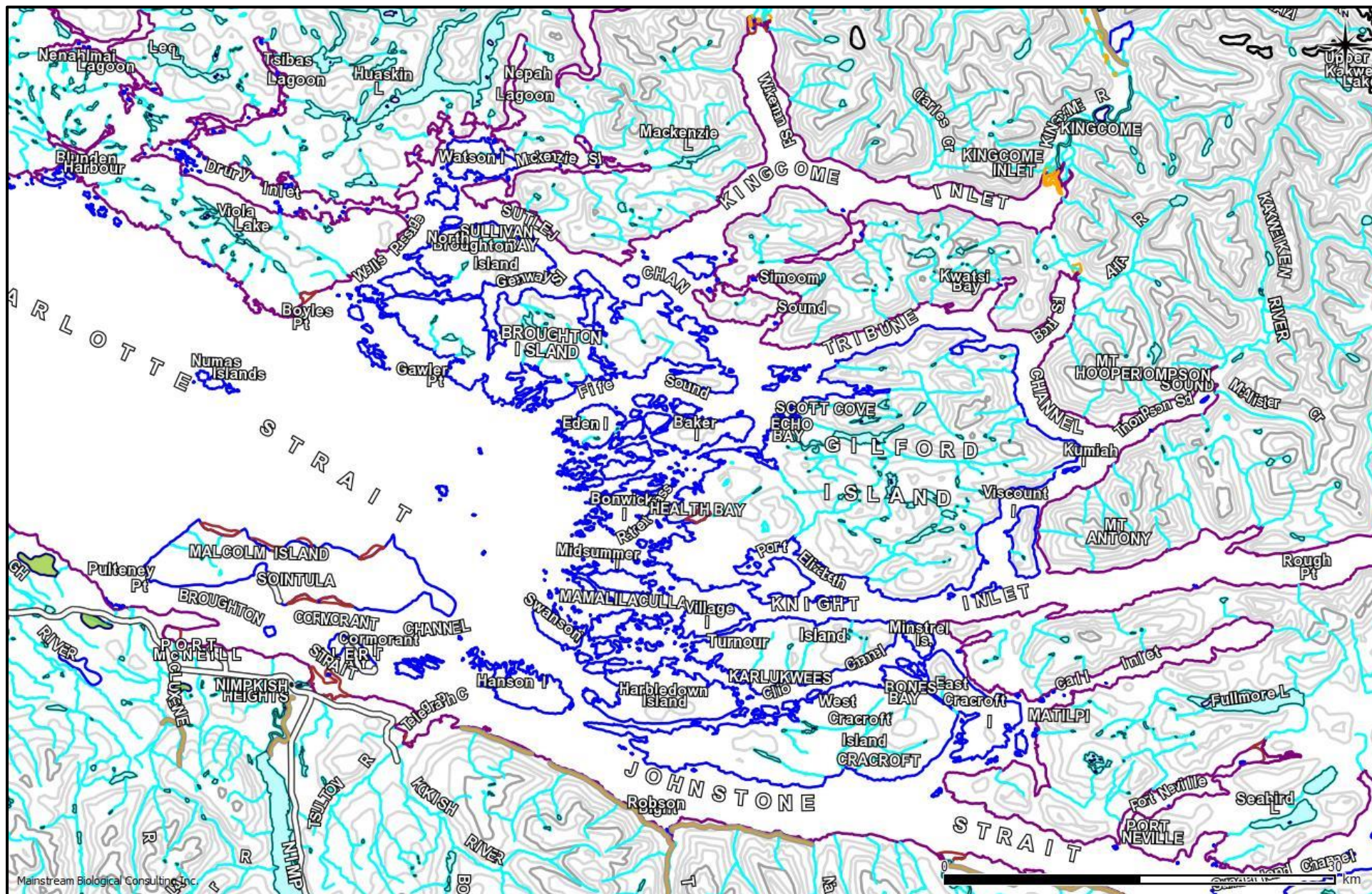


Figure 1: An overview map showing the location of the Broughton Archipelago northeast of Port McNeill, BC.



## 2.0 Methods

The fish inspected for sea lice infestation were collected from sampling sites in the Broughton Archipelago, BC adapted from a series of sites originally sampled in 2010-2012 (Figure 2). For the 2019 sampling year, sites were chosen based on their locations relative to existing aquaculture sites in the area operated by MOWI Canada West and Cermaq Canada, as well as on consultation with local First Nations. A total of 45 sites were ultimately selected for sampling in 2019. Of the 45 sites, 43 were sampled from April 11 – 13, 2019; two site locations had not been finalized during the April sampling period. A total of 32 sites were resampled from June 4 – 6, 2019. Mechanical issues prevented access to the remaining 13 sites during the June sampling period.

### 2.1 Site Locations

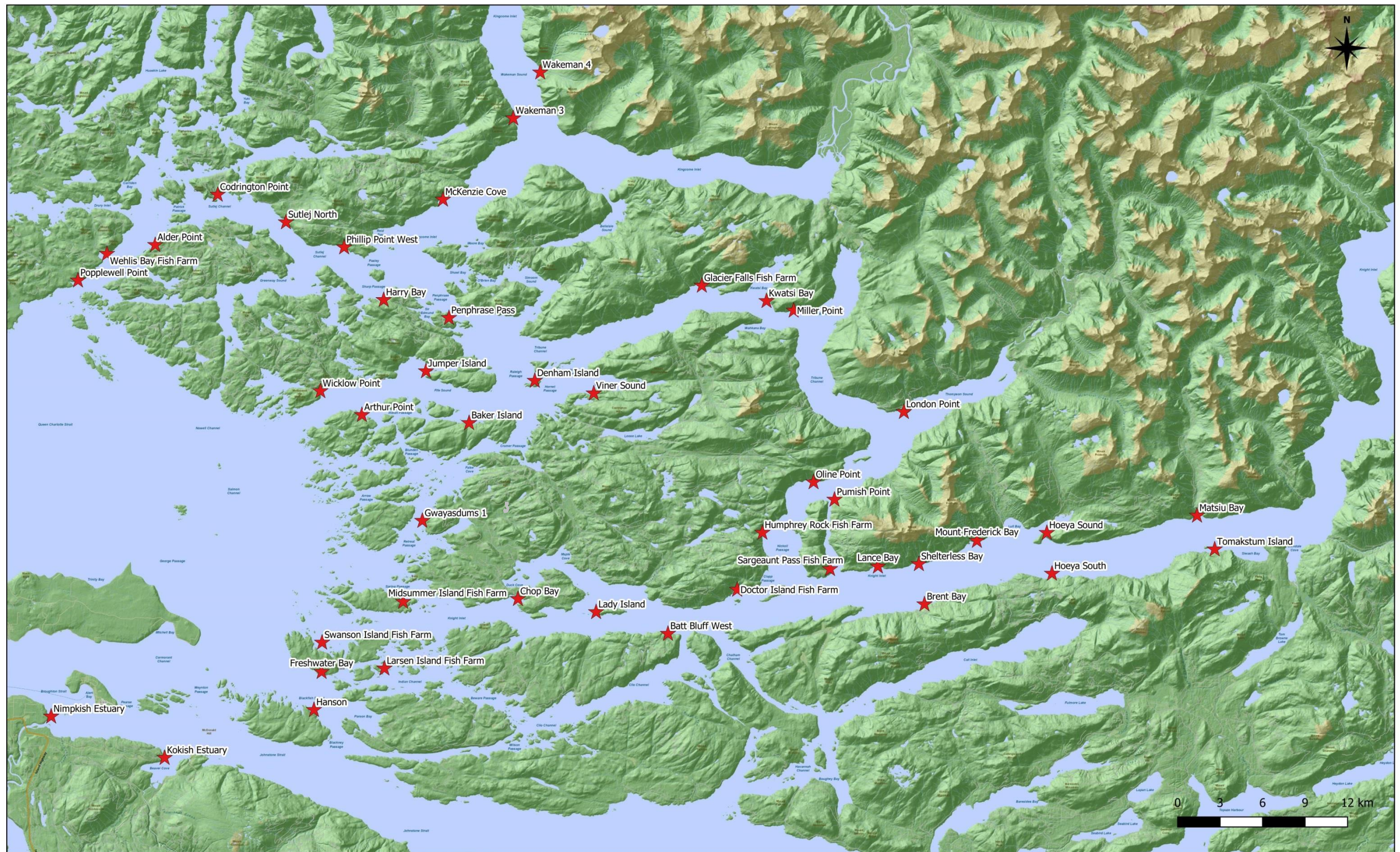
The approximate locations of the sampling sites are shown in Figure 2. GPS coordinates collected in the field for the sites are presented in Table 1.

Table 1: The name and location of the beach seine sampling sites where fish were collected for sea lice analysis in the Broughton Archipelago in 2019.

Site Name	Sampled in April	Sampled in June	Latitude	Longitude
Hanson Island	-	✓	50 34.620	126 43.249
Freshwater Bay	-	✓	50 36.255	126 42.642
Larsen Island Fish Farm	✓	✓	50 36.341	126 38.400
Swanson Island Fish Farm	✓	✓	50 37.304	126 42.148
Midsummer Island Fish Farm (Potts Bay)	✓	✓	50 38.881	126 37.313
Chop Bay	✓	✓	50 39.026	126 30.435
Lady Island	✓	✓	50 38.547	126 25.745
Doctor Island Fish Farm	✓	✓	50 39.426	126 17.297
Humphrey Rock	✓	✓	50 41.596	126 15.797
Oline Point	✓	✓	50 43.522	126 12.736
Pumish Point	✓	✓	50 42.861	126 11.477
Sargeaunt Pass	✓	✓	50 40.223	126 11.732
Lance Bay	✓	✓	50 40.323	126 08.861
Batt Bluff West	✓	✓	50 37.738	126 21.432
Brent Bay	✓	✓	50 38.890	126 06.067
Hoeya South	✓	✓	50 39.862	126 58.869
Tomakstum Island	✓	✓	50 40.920	125 48.719
Matsiu Bay	✓	✓	50 42.256	125 49.716

Site Name	Sampled in April	Sampled in June	Latitude	Longitude
Hoeya Sound	✓	✓	50 41.608	125 58.729
Mount Frederick	✓	✓	50 41.305	126 02.926
Shelterless Bay	✓	✓	50 40.418	126 06.405
London Point	✓	✓	50 46.201	126 07.319
Millar Point	✓	✓	50 50.045	126 13.963
Kwatsi Bay	✓	✓	50 50.404	126 15.602
Glacier Falls Fish Farm	✓	✓	50 50.978	126 19.498
Viner Sound	✓	✓	50 46.861	126 25.964
Jumper Island	✓	✓	50 47.658	126 36.063
Wicklow Bay	✓	✓	50 46.862	126 42.401
Arthur Point	✓	✓	50 45.973	126 39.889
Baker Island	✓	✓	50 45.701	126 33.446
Denham Island	✓	✓	50 47.326	126 29.516
Penphrase Passage	✓	✓	50 49.687	126 34.707
Harry Bay	✓	✓	50 50.351	126 38.646
Wakeman 5	✓	-	50 59.045	126 29.316
Wakeman 4	✓	-	50 57.294	126 30.926
McKenzie Cove	✓	-	50 54.184	126 35.126
Phillip Point West	✓	-	50 52.336	126 41.057
Sutlej North	✓	-	50 53.268	126 44.579
Codrington Point	✓	-	50 54.288	126 48.707
Wehlis Bay Fish Farm	✓	-	50 51.988	126 55.336
Popplewell Point	✓	-	50 50.961	126 57.060
Alder Bay	✓	-	50 52.348	126 52.437
Gwayasdums 1	✓	-	50 41.674	126 36.098
Nimpkish Estuary	✓	-	50 34.371	126 58.316
Kokish Estuary	✓	-	50 32.855	126 51.498





Datum: NAD83  
 Projection: BC Albers  
 Map Base: British Columbia Base Cache

Map created:  
 07/22/2019

Figure 2: The approximate locations of the 45 beach seine sites (red stars) in the Broughton Archipelago selected for sampling in 2019.



## 2.2 Field Procedures

Procedures used by Mainstream Biological Consulting during 2019 sampling were adapted from procedures for beach seining, fish collection and field data recording utilized by the Department of Fisheries and Oceans (DFO).

An 18 ft Boston Whaler powered by a 60 horsepower outboard motor was used to access the beach seine sites. A 150 ft (45.7 m) long by 12 ft (3.7 m) deep beach seine net was used to capture specimens. The net was constructed in three 50 ft (15.2 m) sections, with the centre bunt section consisting of one-quarter inch diameter diamond mesh, and two side panels (wings) consisting of half-inch diameter diamond mesh. Floats were attached every 30 cm along the top-line and a lead line provided weight along the bottom of the net.

A three person crew conducted the beach seine sets. All beaches were approached slowly by boat and one crewmember was put ashore with one end of the net towline. The onshore crewmember held the towline at one side of the sample site, while the second crewmember ensured the net deployed smoothly off the bow or side of the boat as the third crewmember backed the boat in a wide semicircle towards the opposite side of the sample site. When the net was fully deployed, the second crewmember stepped into the shallow water with the towline or tossed it to the awaiting crewmember on shore. A slow retrieval of the net began immediately.

As the net was retrieved, the probe of an Oakton Salt 6+ meter was placed just below the water surface at the stern end of the boat to collect salinity and water temperature data. The meter was calibrated weekly with de-ionized water while traveling to the sample sites.

Crewmembers retrieved the net evenly from opposite ends, ensuring that the lead line remained as close to the bottom as possible. Retrieved netting was piled on the beach above the water level. As the retrieval reached the net bunt, the lead line was retrieved at a faster rate than the floats to allow the netting of the bunt to form a bag under any captured fish. The lead line was then pulled up onto the beach above the water level. One crewmember worked their way around the outside of the net in the shallow water to ensure the floats stayed above the surface of the water. In this manner a small, shallow



bag formed from the bunt of the net contained the captured fish in the water so that they could be sampled.

The two shore crew members collected individual fish from the bunt to ensure that captured fish remained in the net for as short a period of time as possible. The net was manipulated as necessary in response to changing tides to ensure the captured fish remained in sufficient water to minimize contact with the net or with other fish.

Where possible, a total of 30 individuals from each target species were retained for sea lice infestation analysis. If less than 30 individuals of a target species were captured, all the captured fish were retained. Individual fish were scooped into an appropriately sized whirlpac bag. Handling of fish was kept to a minimum.

When all the fish for retention were collected, a total catch number for each species was recorded. The fish remaining in the net were counted out of the seine net, or an estimate of the remaining fish was made (estimates were used when it appeared that more than 500 individuals from any given species remained in the net). The total of fish remaining in the net was added to the number of retained individuals to calculate a total capture number for a given species.

A standardized field form was used to record the following information for each beach seine set:

- Site name;
- Date;
- Time at the end of the individual fish collection;
- Comments on weather and oceanic conditions;
- Total capture and retained fish numbers for each specimen group; and
- Water temperature (°C) and salinity (ppt) to one decimal place.

The retained fish from each site were packaged separately in re-sealable bags and labelled with the site name and the date. Site sample bags were stored in a portable freezer connected to the boat's battery. The specimens were transferred to a freezer immediately upon return from the field.

Following each set the net was reloaded onto the bow of the boat. Crewmembers scanned the net for obvious holes, which were repaired immediately if found. Sampling procedures were repeated at each sample site.

### **2.3 Laboratory Procedures**

Collected sample fish were frozen and delivered to the Center for Aquatic Health Sciences (CAHS) for laboratory analysis. Sea lice observed on the individual fish specimens during laboratory analysis were identified as either non-motile chalimus, or motile pre-adults and adults. Lice were identified as one of two chalimus stages for *Lepeophtheirus salmonis* (Hamre et al., 2013) or four chalimus stages for *Caligus clemensi*. Motile lice, either pre-adults or adults, were identified as either *Lepeophtheirus salmonis* or *Caligus clemensi* and the sex of the louse was determined. Sea lice infestation data was tabulated by CAHS and provided to Mainstream Biological Consulting for reporting.

Data provided by CAHS also included measured fork length in millimetres and weight (recorded to the nearest tenth of a gram). Lengths and weights were recorded with the specimen's corresponding sea lice analysis results.

### **2.4 Data Analysis**

Surface water quality data collected for temperature and salinity was summarized to report the minimum and maximum values as well as the calculated averages for each sample period.

Beach seine fish sample composition was summarized by species and site for each sampling period. The recorded fork lengths and weights of the juvenile chum, pink and coho salmon sample populations were summarized to present minimum and maximum values as well as calculated averages. This analysis was not completed for other species as there were insufficient capture totals to warrant analysis. Sea lice infestation rates, including the number of infested fish and the number of sea lice identified, were determined for the sample population. Prevalence, as defined as the number of host fish found to have one or more sea lice compared to the total number of host fish examined, was determined for the sample population and for chum, pink and coho salmon. Abundance, as defined as the total number of sea lice observed compared to the total

number of host fish examined, was also determined for the sample population and chum, pink and coho salmon. The intensity of sea lice infestation, as described by the number of sea lice found on a single salmon was summarized. Average intensity was calculated by dividing the total number of sea lice identified by the number of infested fish

Statistical analysis of the spatial and temporal distribution of sea lice was not conducted. Spatial and temporal analysis has been limited to the simple presentation and discussion of the number of sea lice found on fish specimens collected from each site during each of the sampling events.

## **3.0 Results**

The following sections outline results of beach seine collection and subsequent sea lice infestation analysis of juvenile salmonids and threespine stickleback collected from the Broughton Archipelago, BC, in 2019. Water quality field data is presented in Appendix I, beach seine fish capture data is included in Appendix II and data on the sample population including sea lice lab analysis results provided by CAHS are located in Appendix III.

### **3.1 Water Quality Parameters**

Surface measurements of water temperature and salinity collected during 2019 beach seining activities are presented in Table 2. The field data recorded at each site is included in Appendix I.

Recorded surface water temperatures ranged from a low of 7.4 °C recorded at Brent Bay on April 12, 2019, to a high of 17.3 °C recorded at Doctor Island Fish Farm on June 4, 2019 (Table 2; Appendix I). Calculated average surface water temperatures increased from 9.2 °C for April 11 – 13, 2019, to 14.1 °C for June 4 – 6, 2019.

Recorded surface water salinity ranged from a low of 5.6 ppt recorded at Penphrase Pass on June 6, 2019, to a high of 34.4 ppt recorded at Hanson Island on June 4, 2019 (Table 2; Appendix I). The calculated weekly average surface water salinity decreased from 27.8 ppt for April 11 – 13, 2019 to 22.4 ppt for June 4 – 6, 2019.

Table 2: Surface water quality parameters collected at beach seine sites in the Broughton Archipelago in 2019.

Site Name	April 11 – 13		June 4 – 6	
	Temp. (°C)	Salinity (ppt)	Temp. (°C)	Salinity (ppt)
Hanson Island	-	-	10.8	34.4
Freshwater Bay	-	-	11.2	32.4
Larsen Island Fish Farm	8.5	33.5	14.1	32.6
Swanson Island Fish Farm	8.2	28.6	12.1	33.6
Midsummer Island Fish Farm (Potts Bay)	8.1	33.6	12.6	33.9
Chop Bay	8.2	31.4	16.0	27.5
Lady Island	8.6	27.7	12.5	10.9
Doctor Island Fish Farm	8.4	32.2	17.3	22.7
Humphrey Rock	8.3	32.5	16.1	22.1
Oline Point	8.4	32.6	15.5	25.6
Pumish Point	8.3	27.9	15.7	25.5
Sargeaunt Pass	8.3	30.4	16.0	20.2
Lance Bay	8.2	32.8	15.9	18.0
Batt Bluff West	8.5	31.5	14.6	23.8
Brent Bay	7.4	14.9	13.1	21.3
Hoeya South	7.8	32.4	14.5	11.6
Tomakstum Island	7.8	15.3	14.1	8.9
Matsiu Bay	8.6	27.9	14.1	8.8
Hoeya Sound	7.9	24.7	14.2	13.6
Mount Frederick Bay	8.2	29.1	13.6	12.5
Shelterless Bay	8.5	32.6	14.1	14.3
London Point	10.2	28.5	12.6	25.5
Miller Point	10.0	24.3	13.2	26.3
Kwatsi Bay	9.7	31.1	13.7	28.8
Glacier Falls Fish Farm	9.8	26.9	13.4	28.7
Viner Sound	10.5	29.4	15.7	26.5
Jumper Island	11.2	32.9	15.8	23.6
Wicklow Point	10.0	31.4	14.0	31.7
Arthur Point	9.6	32.8	13.2	30.2
Baker Island	11.1	30.7	12.2	32.1
Denham Island	9.0	27.2	15.9	19.9
Penphrase Pass	9.3	12.6	13.7	5.6
Harry Bay	9.6	15.2	14.4	5.7
Wakeman 5	10.1	21.0	-	-
Wakeman 4	10.2	22.9	-	-
McKenzie Cove	9.8	16.2	-	-
Phillip Point West	10.3	20.4	-	-
Sutlej North	9.9	27.1	-	-
Codrington Point	9.8	14.6	-	-
Wehlis Bay Fish Farm	9.5	33.1	-	-
Popplewell Point	10.3	33.2	-	-
Alder Point	9.6	33.1	-	-
Gwayasdums 1	10.1	33.8	-	-
Nimkish Estuary	11.7	33.3	-	-
Kokish Estuary	9.1	33.3	-	-
<b>Average</b>	<b>9.2</b>	<b>27.8</b>	<b>14.1</b>	<b>22.4</b>

### 3.2 Fish Sample Composition

A total of 4810 fish were captured during beach seine sampling conducted in the Broughton Archipelago in 2019. Of those, 504 individual fish (10.5 %) were collected as sample specimens and underwent analysis for sea lice infestation (Table 3). The collection totals and percentage for each species are presented in Table 3. Chum salmon and pink salmon were the most common species captured during sampling in 2019. Of the 4287 pink salmon captured, 230 individuals (5.4 %) were retained and underwent lab analysis. Of the 495 chum salmon captured, 246 individuals (49.7 %) were retained and underwent lab analysis. All of the coho and chinook salmon and threespine stickleback captured were retained and analyzed for sea lice infestation (Table 3). No sockeye or Atlantic salmon were captured during sampling in 2019.

A summary of the total number of fish captured and collected as specimens at each site over the collection period can be found in Table 4. Totals of fish captured and collected specimens at each site over the entire collection period can be found in Appendix II. There were 16 sites where no fish were captured during 2019 sampling (Table 4).

Table 3: The total of collected individuals of each fish species captured in the Broughton Archipelago, BC during sampling periods in 2019, and the percentage of the total capture population that they represent.

Common Name	Capture Totals (% of total capture population)	Collection Totals	Collection %
chum salmon	495 (10.3 %)	246	49.7
pink salmon	4287 (89.1 %)	230	5.4
coho salmon	24 (0.5 %)	24	100
chinook salmon	1 (0.02 %)	1	100
sockeye salmon	0	-	-
threespine stickleback	3 (0.1 %)	3	100
<b>All species</b>	<b>4810</b>	<b>504</b>	<b>10.5</b>

Table 4: The number of captured fish (Capture Total) and the number of individual fish collected (Sample Total) from sample sites in the Broughton Archipelago, BC in April and June, 2019.

Site Name	Pink		Chum		Coho		Chinook		TSB		Total	
	Capture Total	Sample Total	Capture Total	Sample Total	Capture Total	Sample Total	Capture Total	Sample Total	Capture Total	Sample Total	Capture Total	Sample Total
Hanson Island	0	0	0	0	0	0	0	0	0	0	0	0
Freshwater Bay	1100	30	100	30	3	3	1	1	0	0	1204	64
Larsen Island Fish Farm	0	0	0	0	0	0	0	0	0	0	0	0
Swanson Island Fish Farm	0	0	0	0	0	0	0	0	0	0	0	0
Midsummer Island Fish Farm (Potts Bay)	4	4	31	26	0	0	0	0	0	0	35	30
Chop Bay	1	1	0	0	0	0	0	0	0	0	1	1
Lady Island	0	0	0	0	0	0	0	0	0	0	0	0
Doctor Island Fish Farm	45	30	10	10	0	0	0	0	0	0	55	40
Humphrey Rock	2	2	1	1	1	1	0	0	0	0	4	4
Oline Point	0	0	0	0	3	3	0	0	0	0	3	3
Pumish Point	1	1	0	0	0	0	0	0	0	0	1	1
Sargeaunt Pass	0	0	1	1	3	3	0	0	0	0	4	4
Lance Bay	6	6	2	2	0	0	0	0	0	0	8	8
Batt Bluff West	0	0	0	0	0	0	0	0	0	0	0	0
Brent Bay	0	0	1	1	1	1	0	0	0	0	2	2
Hoeya South	16	16	4	4	0	0	0	0	0	0	20	20
Tomakstum Island	3	3	1	1	0	0	0	0	0	0	4	4
Matsiu Bay	0	0	0	0	1	1	0	0	0	0	1	1
Hoeya Sound	10	10	121	31	2	2	0	0	0	0	133	43
Mount Frederick Bay	2	2	0	0	0	0	0	0	0	0	2	2
Shelterless Bay	1	1	1	1	0	0	0	0	0	0	2	2
London Point	0	0	0	0	0	0	0	0	0	0	0	0
Miller Point	22	22	18	18	0	0	0	0	0	0	40	40
Kwatsi Bay	1	1	1	1	0	0	0	0	0	0	2	2
Glacier Falls Fish Farm	3007	37	12	3	0	0	0	0	0	0	3019	40
Viner Sound	1	1	15	15	9	9	0	0	0	0	25	25
Jumper Island	18	18	18	18	0	0	0	0	0	0	36	36
Wicklow Point	0	0	0	0	0	0	0	0	0	0	0	0
Arthur Point	0	0	0	0	0	0	0	0	0	0	0	0
Baker Island	34	32	105	30	0	0	0	0	3	3	142	65
Denham Island	3	3	5	5	1	1	0	0	0	0	9	9
Penphrase Pass	3	3	0	0	0	0	0	0	0	0	3	3
Harry Bay	0	0	0	0	0	0	0	0	0	0	0	0
Wakeman 5	0	0	23	23	0	0	0	0	0	0	23	23
Wakeman 4	1	1	13	13	0	0	0	0	0	0	14	14
McKenzie Cove	0	0	0	0	0	0	0	0	0	0	0	0
Phillip Point West	0	0	0	0	0	0	0	0	0	0	0	0
Sutlej North	4	4	10	10	0	0	0	0	0	0	14	14
Codrington Point	0	0	0	0	0	0	0	0	0	0	0	0
Wehlis Bay Fish Farm	0	0	0	0	0	0	0	0	0	0	0	0
Popplewell Point	0	0	0	0	0	0	0	0	0	0	0	0
Alder Point	0	0	0	0	0	0	0	0	0	0	0	0
Gwayasdums 1	0	0	0	0	0	0	0	0	0	0	0	0
Nimpkish Estuary	0	0	1	1	0	0	0	0	0	0	1	1
Kokish Estuary	2	2	1	1	0	0	0	0	0	0	3	3
TOTAL	4287	230	495	246	24	24	1	1	3	3	4810	504

### **3.3 Fish Sample Size Statistics**

Summary statistics for the sample population of juvenile salmonids were completed for weight and fork length. This was completed for chum, pink and coho salmon only as there were insufficient numbers of chinook salmon ( $n=1$ ), and threespine stickleback ( $n=3$ ) captured to warrant this analysis.

#### **3.3.1 Chum Salmon**

The weight of 246 chum smolts collected during the two 2019 sample events in the Broughton Archipelago ranged from 0.20 g to 16.94 g and averaged 1.43 g (SD = 2.41). The fork length of the chum smolts ranged from 30 mm to 117 mm and averaged 45 mm (SD = 16). Chum salmon weight and length data was summarized by month which shows the increase in both parameters in the sample population from April to June, 2019 (Table 5).

#### **3.3.2 Pink Salmon**

The weight of 230 pink smolts collected during the two 2019 sample events in the Broughton Archipelago ranged from 0.16 g to 7.03 g and averaged 1.48 g (SD = 1.53). The fork length of the pink smolts ranged from 27 mm to 85 mm and averaged 46 mm (SD = 16). Pink salmon weight and length data was summarized by month which shows the increase in both parameters in the sample population from April to June, 2019 (Table 5).

#### **3.3.3 Coho Salmon**

The weight of 24 coho smolts collected during the two 2019 sample events in the Broughton Archipelago ranged from 4.86 g to 36.74 g and averaged 16.30 g (SD = 8.53). The fork length of the coho smolts ranged from 70 mm to 129 mm and averaged 103 mm (SD = 18). Coho salmon weight and length data was summarized by month, showing an increase in both parameters in the sample population from April to June, 2019 (Table 5).



Table 5: Average weights and lengths summarized by month of chum, pink and coho salmon collected in the Broughton Archipelago in 2019.

Species	Average Weight (g)		Average Length (mm)	
	April	June	April	June
chum	0.49 (n=185)	4.29 (n=61)	37	68
pink	0.31 (n=131)	3.03 (n=99)	33	63
coho	5.88 (n=4)	18.39 (n=20)	77	109

### 3.4 Sea Lice Infestation Rates

The results of the laboratory analysis for the presence of sea lice on the sample population collected in the Broughton Archipelago in 2019 are presented in Table 6. The data recorded for each fish in the sample population during lab analysis is included in Appendix III. A total of 504 samples were collected from 45 sites during 2019 sampling in the Broughton Archipelago. A total of 130 individuals in the sample population were found to be infested with 327 sea lice (Table 6). A total of 58 chum, 49 pink, and 19 coho salmon were found to be infested with sea lice. All of the threespine stickleback (n=3) and the chinook salmon (n=1) sample were infested with sea lice (Table 6). This data reflects the identification of sea lice of either species (*L. salmonis* and *C. clemensi*) on inspected juvenile salmon.

Prevalence was defined as the number of fish found to be infested with one or more sea louse compared to the total number of fish. Abundance was defined as the total number of sea lice observed compared to the total number of fish (Table 6). The sea lice prevalence in the sample population collected in the Broughton Archipelago in 2019 was 25.8 % and the abundance was 0.65. Sea lice counts of both species observed (*L. salmonis* and *C. clemensi*) were added together for the prevalence and abundance calculations.

The intensity of sea lice infestation, as defined as the number of sea lice on a single infested salmon, ranged from one louse found on 61 individuals to a maximum of 21 lice found on one individual. There were 28 salmon infested with two lice, 14 salmon infested by three lice and 13 samples were found to have four lice. A total of 14 individuals were found to have 5 or more lice. The average intensity was calculated by dividing the total number of sea lice by the number of infested fish of each species (Table 6).

Table 6: Results of analysis for sea lice infestation on salmonid smolts and threespine stickleback collected by beach seine in the Broughton Archipelago, BC in 2019.

Species	Sample size (n)	Total number of lice observed	Total number of fish infested	Prevalence (%)	Abundance	Average Intensity
chum	246	122	58	23.6	0.50	2.1
pink	230	101	49	21.3	0.44	2.1
coho	24	59	19	79.2	2.46	3.1
chinook	1	3	1	100	3.00	3.0
threespine stickleback	3	42	3	100	14.00	14.0
<b>Total</b>	<b>504</b>	<b>327</b>	<b>130</b>	<b>25.8</b>	<b>0.65</b>	<b>2.5</b>

#### 3.4.1 Infestation Rates on Chum Salmon

A total of 58 chum salmon were found to be infested with 122 sea lice (Table 6). The results of the laboratory analysis for sea lice infestation for the chum salmon sample population are presented by site in Table 7. Individual sites with a total capture of more than 10 chum salmon are shown separately in Table 7, while sites with a capture total of less than 10 chum salmon are lumped together and presented at the bottom of the table.

Sea lice counts of both sea lice species observed (*L. salmonis* and *C. clemensi*) were added together for the presentation of sea lice infestation, prevalence and abundance on the chum salmon sample population (Table 6 and 7). For the chum salmon sample population (n=246), more individuals were sampled in April (n=185) than June (n=61); however higher sea lice infestation prevalence and intensity was observed in June (Table 7). A total of 58 chum salmon were found to be infested with at least one sea louse. The prevalence of sea lice on the chum salmon sample population (n=246) collected in the Broughton Archipelago in 2019 was 23.6 %. The highest sea lice prevalence (100 %) was at Jumper Island in June 2019, although this was based on only two individuals captured during that sampling period. Sea lice prevalence calculated by site for the total chum sample population was highly variable ranging from 0 % at Doctor Island Fish Farm, Viner Sound, and Sutlej North to a high of 77.8 % at Miller Point (Table 7).

A total of 122 sea lice were identified during laboratory analysis of retained chum salmon. The abundance of sea lice on the chum salmon sample population (n=246)

collected in the Broughton Archipelago in 2019 was 0.50. Sea lice abundance was calculated by week and by site and is presented in Table 7. Sea lice abundance on chum salmon was higher during the June 2019 sampling period (0.85) as compared to the April sampling period (0.38). The highest sea lice abundance (1.50) was at Jumper Island in June 2019, although this was based on only two individuals captured during that sampling period. Sea lice abundance calculated by site for the total chum sample population was also highly variable ranging from 0 at Doctor Island Fish Farm, Viner Sound, and Sutlej North to a high of 1.39 at Miller Point (Table 7).

Table 7: The number of sea lice, prevalence, abundance, and intensity of infestation on chum salmon collected in the Broughton Archipelago in 2019 summarized by site. Sites with a capture total of 10 chum salmon or more are shown and sites with capture totals of less than 10 chum salmon are lumped together.

Site	Sample Week (2019)														Total Chum Sample Population		
	April 11 – 13							June 4 – 6							Prevalence (%)	Abundance	Average Intensity
	# of Chum Analyzed	# of Infested Chum	Average Weight of Infested Chum (g)	# of Lice	Prevalence (%)	Abundance	Average Intensity	# of Chum Analyzed	# of Infested Chum	Average Weight of Infested Chum (g)	# of Lice	Prevalence (%)	Abundance	Average Intensity			
Freshwater Bay	0	0	-	0	-	-	-	30	10	7.84	16	33.3	0.53	1.6	33.3	0.53	1.6
Midsummer Island Fish Farm (Potts Bay)	26	4	0.41	12	15.4	0.46	3.0	0	0	-	0	-	-	-	15.4	0.46	3.0
Doctor Island Fish Farm	10	0	-	0	0.0	0.00	-	0	0	-	0	-	-	-	0.0	0.00	-
Hoeya Sound	31	1	0.53	1	3.2	0.03	1.0	0	0	-	0	-	-	-	3.2	0.03	1.0
Miller Point	0	0	-	0	-	-	-	18	14	2.76	25	77.8	1.39	1.8	77.8	1.39	1.8
Viner Sound	15	0	-	0	0.0	0.00	-	0	0	-	0	-	-	-	0.0	0.00	-
Jumper Island	16	8	0.65	22	50.0	1.38	2.8	2	2	3.18	3	100.0	1.50	1.5	55.6	1.39	2.5
Baker Island	30	11	0.56	32	36.7	1.07	2.9	0	0	-	0	-	-	-	36.7	1.07	2.9
Wakeman 5	23	1	0.41	1	4.3	0.04	1.0	0	0	-	0	-	-	-	4.3	0.04	1.0
Wakeman 4	13	2	0.91	2	15.4	0.15	1.0	0	0	-	0	-	-	-	15.4	0.15	1.0
Sutlej North	10	0	-	0	0.0	0.00	-	0	0	-	0	-	-	-	0.0	0.00	-
Lumped Sites <sup>1</sup>	11	0	-	0	0.0	0.00	-	11	5	5.80	8	45.5	0.73	1.6	22.7	0.36	1.6
Total	185	27	0.53	70	14.6	0.38	2.6	61	31	4.19	52	50.8	0.85	1.7	23.6	0.50	2.1

<sup>1</sup>Lumped sites (n=34) include: Hanson Island\*, Larsen Island Fish Farm\*, Swanson island Fish Farm\*, Chop Bay\*, Lady Island\*, Humphrey Rock, Oline Point\*, Pumish Point\*, Sargeaunt Pass, Lance Bay, Batt Bluff West\*, Brent Bay, Hoeya South, Tomakstum Island, Matsiu Bay\*, Mount Frederick Bay\*, Shelterless Bay, London Point\*, Kwatsi Bay, Glacier Falls Fish Farm, Wicklow Point\*, Arthur Point\*, Denham Island, Penphrase Pass\*, Harry Bay\*, McKenzie Cove\*, Phillip Point West\*, Codrington Point\*, Wehlis Bay Fish Farm\*, Popplewell Point\*, Alder Point\*, Gwyasdums 1\*, Nimpkish Estuary and Kokish Estuary. Sites where no chum salmon were captured are indicated with an asterisk.

### **3.4.2 Infestation Rates on Pink Salmon**

A total of 49 pink salmon were found to be infested with 101 sea lice (Table 6). The results of the laboratory analysis for sea lice infestation for the pink salmon sample population are presented by site in Table 8. Individual sites with a total capture of more than 10 pink salmon are shown in Table 8, while sites with a capture total of less than 10 pink salmon are lumped together and presented at the bottom of the table.

Sea lice counts of both sea lice species observed (*L. salmonis* and *C. clemensi*) were added together for the presentation of sea lice infestation, prevalence and abundance on the pink salmon sample population (Table 6 and 8). For the pink salmon sample population (n=230) there were slightly more infested individuals (26 pinks) and more sea lice (60 lice) found on pink salmon collected in April 2019 than in June (Table 8).

A total of 49 pink salmon were found to be infested with at least one sea louse. The prevalence of sea lice on the pink salmon sample population (n=230) collected in the Broughton Archipelago in 2019 was 21.3 %. Sea lice prevalence on pink salmon was lower in April (19.8 %) than June (23.2 %) during the 2019 sampling period. The highest sea lice prevalence (100 %) was at Baker Island in June 2019, though this value was based on a single individual captured at that location (Table 8). Sea lice prevalence calculated by site for the total pink sample population was highly variable ranging from 0 % at Doctor Island Fish Farm, Hoeya South, Hoeya Sound, and Mount Frederick Bay to a high of 50.0 % at Baker Island (Table 8).

A total of 101 sea lice were identified during laboratory analysis of retained pink salmon. The abundance of sea lice on the pink salmon sample population (n=230) collected in the Broughton Archipelago in 2019 was 0.44. Sea lice abundance was calculated by week and by site and is presented in Table 8. Sea lice abundance on pink salmon was slightly lower in June (0.41) than in April (0.46) in 2019. The highest sea lice abundance at an individual site (1.06) was Baker Island in June 2019. Sea lice abundance calculated by site for the total pink sample population was also highly variable ranging from 0 at Doctor Island Fish Farm, Hoeya South, Hoeya Sound, and Mount Frederick Bay to a high of 1.06 at Baker Island (Table 8).

Table 8: The number of sea lice, prevalence, abundance, and intensity of infestation on pink salmon collected in the Broughton Archipelago in 2019 summarized by site. Sites with a capture total of 10 pink salmon or more are shown and sites with capture totals of less than 10 pink salmon are lumped together.

Site	Sample Week (2019)														Total Pink Sample Population		
	April 11 – 13							June 4 – 6							Prevalence (%)	Abundance	Average Intensity
	# of Pink Analyzed	# of Infested Pink	Average Weight of Infested Pink (g)	# of Lice	Prevalence (%)	Abundance	Average Intensity	# of Pink Analyzed	# of Infested Pink	Average Weight of Infested Pink (g)	# of Lice	Prevalence (%)	Abundance	Average Intensity			
Freshwater Bay	0	0	-	0	-	-	-	30	5	2.30	5	16.7	0.17	1.0	16.7	0.17	1.0
Doctor Island Fish Farm	30	0	-	0	0	0	-	0	0	-	0	-	-	-	0.0	0.00	-
Hoeya South	0	0	-	0	-	-	-	16	0	-	0	0.0	0.00	-	0.0	0.00	-
Hoeya Sound	10	0	-	0	0	0	-	0	0	-	0	-	-	-	0.0	0.00	-
Mount Frederick Bay	2	0	-	0	0	0	-	0	0	-	0	-	-	-	0.0	0.00	-
Miller Point	2	0	-	0	0	0	-	20	9	2.60	21	45.0	1.05	2.3	40.9	0.95	2.3
Glacier Falls Fish Farm	7	0	-	0	0	0	-	30	7	3.66	12	23.3	0.40	1.7	18.9	0.32	1.7
Jumper Island	18	7	0.39	18	38.9	1.00	2.6	0	0	-	0	-	-	-	38.9	1.00	2.6
Baker Island	31	15	0.35	33	48.4	1.06	2.2	1	1	1.25	1	100.0	1.00	1.0	50.0	1.06	2.1
Lumped Sites	31	4	0.39	9	12.9	0.29	2.3	2	1	2.25	2	50.0	1.00	2.0	15.2	0.33	2.2
Total	131	26	0.37	60	19.8	0.46	2.3	99	23	2.79	41	23.2	0.41	1.8	21.3	0.44	2.1

<sup>1</sup>Lumped sites (n=36) include: Hanson Island\*, Larsen Island Fish Farm\*, Swanson island Fish Farm\*, Midsummer Island Fish Farm, Chop Bay, Lady Island\*, Humphrey Rock, Oline Point\*, Pumish Point, Sargeaunt Pass\*, Lance Bay, Batt Bluff West\*, Brent Bay\*, Tomakstum Island, Matsiu Bay\*, Shelterless Bay, London Point\*, Kwatsi Bay, Viner Sound, Wicklow Point\*, Arthur Point\*, Denham Island, Penphrase Pass, Harry Bay\*, Wakeman 5\*, Wakeman 4, McKenzie Cove\*, Phillip Point West\*, Suttlej North, Codrington Point\*, Wehlis Bay Fish Farm\*, Popplewell Point\*, Alder Point\*, Gwyasdums 1\*, Nimpkish Estuary\* and Kokish Estuary. Sites where no pink salmon were captured are indicated with an asterisk.

### **3.4.3 Infestation Rates on Other Species**

Coho salmon were the third most abundant species collected during beach seine sampling in the Broughton Archipelago in 2019 (n= 24). A total of 19 coho salmon were found to be infested with 59 sea lice resulting in a species prevalence of 79.2 % and an abundance of 2.46 (Table 6). Infested coho salmon were collected from Humphrey Rock, Oline Point, Freshwater Bay Fish Farm, Viner Sound, Denham Island, Sargeaunt Pass, Hoeya Sound, and Brent Bay. Given the low numbers of fish caught at each site (between 1 and 9 individuals), the results were not further analysed on a per site basis.

A total of three threespine stickleback were collected during beach seine sampling in the Broughton Archipelago in 2019. The stickleback were captured at Baker Island, and all three individuals were infested with a total of 42 sea lice. This resulted in a species prevalence of 100%, and abundance and intensity of 14.0 (Table 6).

A single chinook salmon was captured at Freshwater Bay Fish Farm during June 2019 sampling in the Broughton Archipelago. This individual was infested with a total of three lice (Table 6).

### 3.5 Infestation Rates by Sea Lice Species

A total of 132 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 75 individuals and 195 *Caligus clemensi* sea lice were found on 93 of the samples analyzed in the lab (Appendix III). There were 38 samples that were infested with both *L. salmonis* and *C. clemensi* sea lice.

#### 3.5.1 Infestation Rates by Sea Lice Species on Chum Salmon

An analysis of the species of sea lice identified on the 246 chum salmon collected in the Broughton Archipelago is presented in Table 9. A total of 53 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 35 juvenile chum salmon and 69 *Caligus clemensi* sea lice were found on 40 of the juvenile chum salmon analyzed in the lab (Appendix III). There were 17 juvenile chum salmon that were infested with both *L. salmonis* and *C. clemensi* sea lice. The sea lice species identified on chum salmon are also presented by site by week in Table 10. Individual sites with a total capture of more than 10 chum salmon are shown in Table 10. Sites with a capture total of less than 10 chum salmon are lumped together and presented at the bottom of the table.

For the chum salmon sample population infested with *Caligus clemensi* sea lice (n=40) there were 23 samples infested with one louse, ten samples infested with two sea lice, three samples each with three and four sea lice, and a single individual with five sea lice. For the chum salmon sample population infested with *Lepeophtheirus salmonis* sea lice (n=35) there were 24 samples infested with one louse, seven with two lice, two samples infested with three lice, and one each infested with four and five lice.



Table 9: The number of sea lice in each life stage by species identified on the chum salmon sample population from the Broughton Archipelago in 2019.  
LEP = *Lepeophtheirus salmonis* CAL = *Caligus clemensi*

Life Stage <sup>1</sup>	April 11 – 13	June 4 – 6
LEP Co	4	1
LEP C1	18	9
LEP C2	3	4
LEP PAM	0	5
LEP PAF	0	1
LEP AM	0	5
LEP AF	0	3
<b>TOTAL LEP</b>	<b>25</b>	<b>28</b>
CAL Co	1	1
CAL C1	36	14
CAL C2	7	2
CAL C3	1	3
CAL C4	0	2
CAL PAM	0	0
CAL PAF	0	0
CAL AM	0	0
CAL AF	0	2
<b>TOTAL CAL</b>	<b>45</b>	<b>24</b>

<sup>1</sup> Lice life stage codes: Co = copepodid, C1-4 = chalimus 1-4, PAM = pre-adult male, PAF = pre-adult female, AM = adult male, AF = adult female

Table 10: The species of sea lice found on chum salmon collected in the Broughton Archipelago in 2019 summarized by site. Sites with a total capture of more than 10 chum salmon are shown. Sites with a capture total of less than 10 chum salmon are lumped. LEP = *Lepeophtheirus salmonis* CAL = *Caligus clemensi*

Site	Sample Week (2019)								TOTAL		
	April 11 – 13				June 4 – 6				# of Chum Analyzed	# of Infested Chum	# of Lice
	# of Chum Analyzed	# of Infested Chum	# of LEP	# of CAL	# of Chum Analyzed	# of Infested Chum	# of LEP	# of CAL			
Freshwater Bay	0	0	0	0	30	10	10	6	30	10	16
Midsummer Island Fish Farm (Potts Bay)	26	4	5	7	0	0	0	0	26	4	12
Doctor Island Fish Farm	10	0	0	0	0	0	0	0	10	0	0
Hoeya Sound	31	1	0	1	0	0	0	0	31	1	1
Miller Point	0	0	0	0	18	14	13	12	18	14	25
Jumper Island	16	8	5	17	2	2	2	1	18	10	25
Baker Island	30	11	14	18	0	0	0	0	30	11	32
Wakeman 5	23	1	1	0	0	0	0	0	23	1	1
Wakeman 4	13	2	0	2	0	0	0	0	13	2	2
Sutlej North	10	0	0	0	0	0	0	0	10	0	0
Lumped Sites <sup>1</sup>	26	0	0	0	11	5	3	5	37	5	8
<b>Total</b>	<b>185</b>	<b>27</b>	<b>25</b>	<b>45</b>	<b>61</b>	<b>31</b>	<b>28</b>	<b>24</b>	<b>246</b>	<b>58</b>	<b>122</b>

<sup>1</sup>Lumped sites (n=34) include: Hanson Island\*, Larsen Island Fish Farm\*, Swanson island Fish Farm\*, Chop Bay\*, Lady Island\*, Humphrey Rock, Oline Point\*, Pumish Point\*, Sargeaunt Pass, Lance Bay, Batt Bluff West\*, Brent Bay, Hoeya South, Tomakstum Island, Matsiu Bay\*, Mount Frederick Bay\*, Shelterless Bay, London Point\*, Kwatsi Bay, Glacier Falls Fish Farm, Wicklow Point\*, Arthur Point\*, Denham Island, Penphrase Pass\*, Harry Bay\*, McKenzie Cove\*, Phillip Point West\*, Codrington Point\*, Wehlis Bay Fish Farm\*, Popplewell Point\*, Alder Point\*, Gwyasdums 1\*, Nimpkish Estuary and Kokish Estuary. Sites where no chum salmon were captured are indicated with an asterisk.

### **3.5.2 Infestation Rates by Sea Lice Species on Pink Salmon**

An analysis of the species of sea lice identified on the 230 pink salmon collected in the Broughton Archipelago is presented in Table 11. A total of 56 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 27 juvenile pink salmon and 45 *Caligus clemensi* sea lice were found on 31 of the juvenile pink salmon analyzed in the lab (Appendix III). There were 9 juvenile pink salmon that were infested with both *L. salmonis* and *C. clemensi* sea lice. The sea lice species identified on pink salmon are also presented by site and week in Table 12. Individual sites with a total capture of more than 10 pink salmon are shown in Table 12. Sites with a capture total of less than 10 pink salmon are lumped together and shown at the bottom of the table.

For the pink salmon sample population infested with *Caligus clemensi* sea lice (n=31) there were 10 samples infested with one louse, five with two lice, one with three lice and one sample infested with five lice. For the pink salmon sample population infested with *Lepeophtheirus salmonis* sea lice (n=27) there were nine samples infested with one louse, three with two lice, one with five lice, and two samples infested with six lice.

Table 11: The number of sea lice in each life stage by species identified on the pink salmon sample population from the Broughton Archipelago in 2019.  
LEP = *Lepeophtheirus salmonis* CAL = *Caligus clemensi*

Life Stage <sup>1</sup>	April 11 – 13	June 4 – 6
LEP Co	7	2
LEP C1	16	2
LEP C2	9	0
LEP PAM	0	1
LEP PAF	0	2
LEP AM	0	9
LEP AF	0	8
<b>TOTAL LEP</b>	<b>32</b>	<b>24</b>
CAL Co	1	1
CAL C1	22	13
CAL C2	5	1
CAL C3	0	1
CAL C4	0	0
CAL PAM	0	0
CAL PAF	0	0
CAL AM	0	1
CAL AF	0	0
<b>TOTAL CAL</b>	<b>28</b>	<b>17</b>

<sup>1</sup> Lice life stage codes: Co = copepodid, C1-4 = chalimus 1-4, PAM = pre-adult male, PAF = pre-adult female, AM = adult male, AF = adult female.

Table 12: The species of sea lice found on pink salmon collected in the Broughton Archipelago in 2019 summarized by site. Sites with a total capture of more than 10 pink salmon are shown. Sites with a capture total of less than 10 pink salmon are lumped.

LEP = *Lepeophtheirus salmonis* CAL = *Caligus clemensi*

Site	Sample Week (2019)								TOTAL		
	April 11 – 13				June 4 – 6				# of Pink Analyzed	# of Infested Pink	# of Lice
	# of Pink Analyzed	# of Infested Pink	# of LEP	# of CAL	# of Pink Analyzed	# of Infested Pink	# of LEP	# of CAL			
Freshwater Bay	0	0	0	0	30	5	1	4	30	5	5
Doctor Island Fish Farm	30	0	0	0	0	0	0	0	30	0	0
Hoeya South	0	0	0	0	16	0	0	0	16	0	0
Hoeya Sound	10	0	0	0	0	0	0	0	10	0	0
Miller Point	2	0	0	0	20	9	18	3	22	9	21
Glacier Falls Fish Farm	7	0	0	0	30	7	2	10	37	7	12
Jumper Island	18	7	9	9	0	0	0	0	18	7	18
Baker Island	31	15	15	18	1	1	1	0	32	16	34
Lumped Sites <sup>1</sup>	33	4	8	1	2	1	2	0	35	5	11
<b>Total</b>	<b>131</b>	<b>26</b>	<b>32</b>	<b>28</b>	<b>99</b>	<b>23</b>	<b>24</b>	<b>17</b>	<b>230</b>	<b>49</b>	<b>101</b>

<sup>1</sup>Lumped sites (n=36) include: Hanson Island\*, Larsen Island Fish Farm\*, Swanson island Fish Farm\*, Midsummer Island Fish Farm, Chop Bay, Lady Island\*, Humphrey Rock, Oline Point\*, Pumish Point, Sargeaunt Pass\*, Lance Bay, Batt Bluff West\*, Brent Bay\*, Tomakstum Island, Matsiu Bay\*, Shelterless Bay, London Point\*, Kwatsi Bay, Viner Sound, Wicklow Point\*, Arthur Point\*, Denham Island, Penphrase Pass, Harry Bay\*, Wakeman 5\*, Wakeman 4, McKenzie Cove\*, Phillip Point West\*, Sutlej North, Codrington Point\*, Wehlis Bay Fish Farm\*, Popplewell Point\*, Alder Point\*, Gwyasdums 1\*, Nimpkish Estuary\* and Kokish Estuary. Sites where no pink salmon were captured are indicated with an asterisk.

### **3.5.3 Infestation Rates by Sea Lice Species on Coho Salmon**

An analysis of the species of sea lice identified on the 24 coho salmon collected in the Broughton Archipelago is presented in Table 13. A total of 13 *Lepeophtheirus salmonis* sea lice of various life stages were identified on nine juvenile coho salmon and 46 *Caligus clemensi* sea lice were found on 18 of the juvenile coho salmon analyzed in the lab (Appendix III). Eight of the juvenile coho salmon were infested with both *L. salmonis* and *C. clemensi* sea lice. The sea lice species identified on coho salmon are also presented by site and week in Table 14. Only those sites where coho were captured are shown.

For the coho salmon sample population infested with *Caligus clemensi* sea lice (n=18) there were 11 samples infested with one louse, one each with two and three lice, three with four lice and one each with six and 12 lice. For the coho salmon sample population infested with *Lepeophtheirus salmonis* sea lice (n=9) there were six samples infested with one louse, two samples infested with two lice, and one individual infested with three lice.

Table 13: The number of sea lice in each life stage by species identified on the coho salmon sample population from the Broughton Archipelago in 2019.  
LEP = *Lepeophtheirus salmonis* CAL = *Caligus clemensi*

Life Stage <sup>1</sup>	April 11 – 13	June 4 – 6
LEP Co	0	0
LEP C1	0	1
LEP C2	0	4
LEP PAM	0	3
LEP PAF	0	3
LEP AM	0	2
LEP AF	0	0
<b>TOTAL LEP</b>	<b>0</b>	<b>13</b>
CAL Co	0	0
CAL C1	18	6
CAL C2	6	4
CAL C3	2	1
CAL C4	0	0
CAL PAM	0	0
CAL PAF	0	1
CAL AM	0	2
CAL AF	0	6
<b>TOTAL CAL</b>	<b>26</b>	<b>20</b>

<sup>1</sup> Lice life stage codes: Co = copepodid, C1-4 = chalimus 1-4, PAM = pre-adult male, PAF = pre-adult female, AM = adult male, AF = adult female.

Table 14: The species of sea lice found on coho salmon collected in the Broughton Archipelago in 2019 summarized by site. Only those sites where coho salmon were captured are shown. LEP = *Lepeophtheirus salmonis* CAL = *Caligus clemensi*

Site	Sample Week (2019)								TOTAL		
	April 11 – 13				June 4 – 6				# of Coho Analyzed	# of Infested Coho	# of Lice
	# of Coho Analyzed	# of Infested Coho	# of LEP	# of CAL	# of Coho Analyzed	# of Infested Coho	# of LEP	# of CAL			
Humphrey Rock	1	1	0	12	0	-	-	-	1	1	12
Oline Point	3	3	0	14	0	-	-	-	3	3	14
Freshwater Bay Fish Farm	0	-	-	-	3	2	1	2	3	2	3
Viner Sound	0	-	-	-	9	8	5	11	9	8	16
Denham Island	0	-	-	-	1	1	1	1	1	1	2
Sargeaunt Pass	0	-	-	-	3	3	3	2	3	3	5
Hoeya Sound	0	-	-	-	2	0	-	-	2	0	-
Brent Bay	0	-	-	-	1	1	3	4	1	1	7
Matsui Bay	0	-	-	-	1	0	-	-	1	0	-
<b>Total</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>26</b>	<b>20</b>	<b>15</b>	<b>13</b>	<b>20</b>	<b>24</b>	<b>19</b>	<b>59</b>



### 3.5.4 Infestation Rates by Sea Lice Species on Other Fish Species

One *Lepeophtheirus salmonis* and two *Caligus clemensi* were found on the single chinook salmon collected during 2019 beach seine sampling in the Broughton Archipelago (Table 15). The chinook was captured at the Freshwater Bay Fish Farm site on June 4, 2019.

A total of nine *Lepeophtheirus salmonis* and 33 *Caligus clemensi* were identified on three threespine stickleback collected in the Broughton Archipelago during the 2019 sample period (Table 15, Appendix III).

Table 15: The distribution of sea lice species identified on threespine stickleback and chinook salmon collected in the Broughton Archipelago in 2019 by site.  
LEP = *Lepeophtheirus salmonis* CAL = *Caligus clemensi*

Species	# of individuals	Date Collected (2019)	Site	# of LEP (Life Stage)	# of CAL (Life Stage)
chinook salmon	1	June 4	Freshwater Bay Fish Farm	1 (C1)	2 (C1)
threespine stickleback	3	June 5	Baker Island	1 (Co) 6 (C1) 2 (C2)	9 (Co) 19 (C1) 2 (C2) 2 (C3) 1 (C4)
<b>TOTAL</b>	<b>4</b>	<b>-</b>	<b>-</b>	<b>10</b>	<b>35</b>

## 4.0 Conclusions

This report presents the data from the fourth year of wild juvenile salmonid beach seining and sea lice analysis conducted for ASC certification purposes in the Broughton Archipelago, BC. This report is limited to the summary and presentation of the data collected in 2019 on behalf of MOWI Canada West and Cermaq Canada. A tabular comparison of water quality data and sea lice infestation data for chum and pink salmon for 2016 through 2019 is presented in Appendix IV.

In 2019, a total of 504 individual samples underwent lab analysis for sea lice infestation including 246 chum salmon, 230 pink salmon, 24 coho salmon, one chinook salmon, and three threespine stickleback. From the total sample population 130 individuals were infested with 327 sea lice. The calculated prevalence for the total sample population was 25.8 % and the sea lice abundance was 0.65 for the sample population collected in the Broughton Archipelago in 2019.

A total of 495 chum salmon were captured, representing 10.3% of all captured samples. Of the 495 chum captured, 246 were kept for lab analysis for sea lice infestation. A total of 58 chum smolts were found to be infested with 122 lice resulting in a calculated prevalence of 23.6% and an abundance of 0.50 for the chum salmon sample population.

A total of 4287 pink salmon were captured, representing 89.1 % of all captured samples. Of the 4287 pinks captured, 230 were kept for lab analysis for sea lice infestation. A total of 49 pink salmon were found to be infested with 101 lice resulting in a calculated prevalence of 21.3% and an abundance of 0.44 for the pink salmon sample population.

A total of 24 coho salmon were captured, retained and analyzed for sea lice infestation. Of the 24 samples, 19 coho salmon were found to be infested by 59 lice resulting in a calculated prevalence of 79.2 % and an abundance of 2.46 for the coho salmon sample population.

A total of three threespine stickleback were captured, retained and analyzed for sea lice infestation. The three fish were infested with a total of 42 sea lice. A single chinook

salmon was captured, retained and analyzed for sea lice infestation. The chinook was infested with three lice.

A total of 132 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 75 individuals and 195 *Caligus clemensi* sea lice were found on 93 of the samples analyzed in the lab. There were 38 samples that were infested with both *L. salmonis* and *C. clemensi* sea lice.

For the chum salmon sample population, a total of 53 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 35 juvenile chum salmon and 69 *Caligus clemensi* sea lice were found on 40 of the juvenile chum salmon analyzed in the lab. There were 17 juvenile chum salmon that were infested with both a *L. salmonis* and a *C. clemensi* sea louse.

For the pink salmon sample population, a total of 56 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 27 juvenile pink salmon and 45 *Caligus clemensi* sea lice were found on 31 of the juvenile pink salmon analyzed in the lab. There were 9 juvenile pink salmon that were infested with both *L. salmonis* and *C. clemensi* sea lice.

For the coho salmon sample population, a total of 13 *Lepeophtheirus salmonis* sea lice of various life stages were identified on nine juvenile coho salmon and 46 *Caligus clemensi* sea lice were found on 18 of the juvenile coho salmon. Eight juvenile coho salmon were infested with both *L. salmonis* and *C. clemensi* sea lice.

One *Lepeophtheirus salmonis* and two *Caligus clemensi* were found on the single chinook salmon collected during 2019 beach seine sampling.

A total of nine *Lepeophtheirus salmonis* and 33 *Caligus clemensi* were identified on three threespine stickleback collected in the Broughton Archipelago during the 2019 sample period.

A comparison of the prevalence, abundance and average intensity of sea lice infestation by sea lice species found on chum and pink salmon was completed for 2016 – 2019 sample data collected in the Broughton Archipelago. This data is presented in the following summary tables with additional yearly comparisons of juvenile wild salmon monitoring results presented in Appendix IV.

Chum by Year	<i>Caligus clemensi</i>			<i>Lepeophtheirus salmonis</i>		
	Prevalence	Abundance	Average Intensity	Prevalence	Abundance	Average Intensity
2016 (n=512)	20.3 %	0.32	1.6	13.3 %	0.19	1.4
2017 (n=562)	17.4 %	0.31	1.8	11.0 %	0.14	1.3
2018 (n=281)	12.5 %	0.16	1.3	10.3 %	0.11	1.1
2019 (n=246)	16.3 %	0.28	1.7	14.2 %	0.22	1.5

Pink by Year	<i>Caligus clemensi</i>			<i>Lepeophtheirus salmonis</i>		
	Prevalence	Abundance	Average Intensity	Prevalence	Abundance	Average Intensity
2016 (n=430)	24.4 %	0.33	1.3	15.3 %	0.24	1.5
2017 (n=411)	15.1 %	0.23	1.5	6.6 %	0.09	1.4
2018 (n=356)	11.5 %	0.16	1.4	5.6 %	0.06	1.1
2019 (n=230)	13.5 %	0.20	1.5	11.7 %	0.24	2.1

## 5.0 References

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## Appendix I – Field Data

Date	Site Name	Salinity (ppt) 0.2 m	Temperature (°C) 0.2 m
4/11/2019	Larsen Island Fish Farm	33.5	8.5
4/11/2019	Swanson Island Fish Farm	28.6	8.2
4/11/2019	Midsummer Island Fish Farm (Potts Bay)	33.6	8.1
4/11/2019	Chop Bay	31.4	8.2
4/11/2019	Lady Island	27.7	8.6
4/11/2019	Doctor Island Fish Farm	32.2	8.4
4/11/2019	Humphrey Rock	32.5	8.3
4/11/2019	Oline Point	32.6	8.4
4/11/2019	Pumish Point	27.9	8.3
4/11/2019	Sargeaunt Pass	30.4	8.3
4/11/2019	Lance Bay	32.8	8.2
4/11/2019	Batt Bluff West	31.5	8.5
4/12/2019	Brent Bay	14.9	7.4
4/12/2019	Hoeya South	32.4	7.8
4/12/2019	Tomakstum Island	15.3	7.8
4/12/2019	Matsiu Bay	27.9	8.6
4/12/2019	Hoeya Sound	24.7	7.9
4/12/2019	Mount Frederick Bay	29.1	8.2
4/12/2019	Shelterless Bay	32.6	8.5
4/12/2019	London Point	28.5	10.2
4/12/2019	Miller Point	24.3	10.0
4/12/2019	Kwatsi Bay	31.1	9.7
4/12/2019	Glacier Falls Fish Farm	26.9	9.8
4/12/2019	Viner Sound	29.4	10.5
4/12/2019	Jumper Island	32.9	11.2
4/12/2019	Wicklow Point	31.4	10.0
4/12/2019	Arthur Point	32.8	9.6
4/12/2019	Baker Island	30.7	11.1
4/13/2019	Denham Island	27.2	9.0
4/13/2019	Penphrase Pass	12.6	9.3
4/13/2019	Harry Bay	15.2	9.6
4/13/2019	Wakeman 5	21.0	10.1
4/13/2019	Wakeman 4	22.9	10.2
4/13/2019	McKenzie Cove	16.2	9.8
4/13/2019	Phillip Point West	20.4	10.3
4/13/2019	Sutlej North	27.1	9.9
4/13/2019	Codrington Point	14.6	9.8
4/13/2019	Wehlis Bay Fish Farm	33.1	9.5
4/13/2019	Popplewell Point	33.2	10.3
4/13/2019	Alder Point	33.1	9.6
4/13/2019	Gwayasdums 1	33.8	10.1
4/13/2019	Nimpkish Estuary	33.3	11.7
4/13/2019	Kokish Estuary	33.3	9.1
6/4/2019	Hanson Island	34.4	10.8
6/4/2019	Freshwater Bay	32.4	11.2
6/4/2019	Swanson Island Fish Farm	33.6	12.1

Date	Site Name	Salinity (ppt) 0.2 m	Temperature (°C) 0.2 m
6/4/2019	Larsen Island Fish Farm	32.6	14.1
6/4/2019	Midsummer Island Fish Farm (Potts Bay)	33.9	12.6
6/4/2019	Chop Bay	27.5	16.0
6/4/2019	Lady Island	10.9	12.5
6/4/2019	Batt Bluff West	23.8	14.6
6/4/2019	Doctor Island Fish Farm	22.7	17.3
6/4/2019	Humphrey Rock	22.1	16.1
6/4/2019	Oline Point	25.6	15.5
6/4/2019	Pumish Point	25.5	15.7
6/4/2019	Sargeaunt Pass	20.2	16.0
6/4/2019	Lance Bay	18.0	15.9
6/5/2019	Brent Bay	21.3	13.1
6/5/2019	Hoeya South	11.6	14.5
6/5/2019	Tomakstum Island	8.9	14.1
6/5/2019	Matsiu Bay	8.8	14.1
6/5/2019	Hoeya Sound	13.6	14.2
6/5/2019	Mount Frederick Bay	12.5	13.6
6/5/2019	Shelterless Bay	14.3	14.1
6/5/2019	London Point	25.5	12.6
6/5/2019	Miller Point	26.3	13.2
6/5/2019	Kwatsi Bay	28.8	13.7
6/5/2019	Glacier Falls Fish Farm	28.7	13.4
6/5/2019	Viner Sound	26.5	15.7
6/5/2019	Denham Island	23.6	15.8
6/5/2019	Jumper Island	31.7	14.0
6/5/2019	Wicklow Point	30.2	13.2
6/5/2019	Arthur Point	32.1	12.2
6/5/2019	Baker Island	19.9	15.9
6/6/2019	Penphrase Pass	5.6	13.7
6/6/2019	Harry Bay	5.7	14.4



Appendix II – Capture and Collection Sample Totals

Date	Site Name	Weather Comments	Tide Stage	Pink Captured	Pink Retained	Chum Captured	Chum Retained	Coho Captured	Coho Retained	Chinook Captured	Chinook Retained	TSB Captured	TSB Retained	Comments
4/11/2019	Larsen Island Fish Farm	Slight chop, overcast	Low	0	0	0	0	0	0	0	0	0	0	
4/11/2019	Swanson Island Fish Farm	Slight chop, overcast	Low	0	0	0	0	0	0	0	0	0	0	
4/11/2019	Midsummer Island Fish Farm (Potts Bay)	Overcast	Low	4	4	31	26	0	0	0	0	0	0	
4/11/2019	Chop Bay	Overcast	Low	1	1	0	0	0	0	0	0	0	0	
4/11/2019	Lady Island	Windy	Low	0	0	0	0	0	0	0	0	0	0	
4/11/2019	Doctor Island Fish Farm	Pouring rain	Low	45	30	10	10	0	0	0	0	0	0	
4/11/2019	Humphrey Rock	Pouring rain	Low	2	2	1	1	1	1	0	0	0	0	
4/11/2019	Oline Point		Low	0	0	0	0	3	3	0	0	0	0	
4/11/2019	Pumish Point		Low	1	1	0	0	0	0	0	0	0	0	
4/11/2019	Sargeaunt Pass	Choppy	Mid	0	0	0	0	0	0	0	0	0	0	
4/11/2019	Lance Bay	Choppy, set in lee of small point	Mid	6	6	2	2	0	0	0	0	0	0	
4/11/2019	Batt Bluff West	Choppy, set in lee of small point	Mid	0	0	0	0	0	0	0	0	0	0	
4/12/2019	Brent Bay	Calm, high overcast	High	0	0	1	1	0	0	0	0	0	0	
4/12/2019	Hoeya South	Calm, clearing	High	0	0	0	0	0	0	0	0	0	0	
4/12/2019	Tomakstum Island	Calm, sunny	Mid	3	3	1	1	0	0	0	0	0	0	
4/12/2019	Matsiu Bay	Light chop, sunny	Mid	0	0	0	0	0	0	0	0	0	0	
4/12/2019	Hoeya Sound	Overcast, light chop	Mid	10	10	121	31	0	0	0	0	0	0	
4/12/2019	Mount Frederick Bay	Calm, partial overcast	Mid	2	2	0	0	0	0	0	0	0	0	
4/12/2019	Shelterless Bay	Calm	Mid	1	1	1	1	0	0	0	0	0	0	
4/12/2019	London Point	Sunny, light breeze	Low	0	0	0	0	0	0	0	0	0	0	
4/12/2019	Miller Point	Sunny, choppy	Mid	2	2	0	0	0	0	0	0	0	0	
4/12/2019	Kwatsi Bay	Choppy	Low	0	0	0	0	0	0	0	0	0	0	
4/12/2019	Glacier Falls Fish Farm	Choppy	Low	7	7	2	2	0	0	0	0	0	0	
4/12/2019	Viner Sound	Slight chop, sunny	Low	1	1	15	15	0	0	0	0	0	0	
4/12/2019	Jumper Island	Choppy	Mid	18	18	16	16	0	0	0	0	0	0	
4/12/2019	Wicklow Point	Calm behind point	Low	0	0	0	0	0	0	0	0	0	0	
4/12/2019	Arthur Point	Calm	Low	0	0	0	0	0	0	0	0	0	0	
4/12/2019	Baker Island	Calm	Low	33	31	105	30	0	0	0	0	0	0	
4/13/2019	Denham Island	Light chop, overcast	High	2	2	1	1	0	0	0	0	0	0	
4/13/2019	Penphrase Pass	Light chop, overcast	High	3	3	0	0	0	0	0	0	0	0	
4/13/2019	Harry Bay	Calm	High	0	0	0	0	0	0	0	0	0	0	
4/13/2019	Wakeman 5	Calm, rain	High	0	0	23	23	0	0	0	0	0	0	
4/13/2019	Wakeman 4	Choppy, rain	High	1	1	13	13	0	0	0	0	0	0	
4/13/2019	McKenzie Cove	Calm at site	High	0	0	0	0	0	0	0	0	0	0	
4/13/2019	Phillip Point West	Choppy, wind, rain	High	0	0	0	0	0	0	0	0	0	0	
4/13/2019	Sutlej North	Choppy	High	4	4	10	10	0	0	0	0	0	0	
4/13/2019	Codrington Point	Light chop, sunny	Mid	0	0	0	0	0	0	0	0	0	0	
4/13/2019	Wehlis Bay Fish Farm	Calm, sunny	Mid	0	0	0	0	0	0	0	0	0	0	
4/13/2019	Popplewell Point	Calm, sunny	Low	0	0	0	0	0	0	0	0	0	0	
4/13/2019	Alder Point	Calm	Low	0	0	0	0	0	0	0	0	0	0	
4/13/2019	Gwayasdums 1	Calm, sunny	Low	0	0	0	0	0	0	0	0	0	0	
4/13/2019	Nimpkish Estuary	West wind, small chop	Low	0	0	1	1	0	0	0	0	0	0	
4/13/2019	Kokish Estuary	Rain, light chop	Low	2	2	1	1	0	0	0	0	0	0	

Date	Site Name	Weather Comments	Tide Stage	Pink Captured	Pink Retained	Chum Captured	Chum Retained	Coho Captured	Coho Retained	Chinook Captured	Chinook Retained	TSB Captured	TSB Retained	Comments
6/4/2019	Hanson Island	Partly cloudy calm	Low	0	0	0	0	0	0	0	0	0	0	
6/4/2019	Freshwater Bay	Sunny, calm	Low	1100	30	100	30	3	3	1	1	0	0	Juvenile rockfish and juvenile lingcod.
6/4/2019	Swanson Island Fish Farm	Sunny, calm	Low	0	0	0	0	0	0	0	0	0	0	Strong tide.
6/4/2019	Larsen Island Fish Farm	Sunny, calm	Low	0	0	0	0	0	0	0	0	0	0	
6/4/2019	Midsummer Island Fish Farm (Potts Bay)	Sunny, light breeze	Low	0	0	0	0	0	0	0	0	0	0	
6/4/2019	Chop Bay	Sunny, calm	Low	0	0	0	0	0	0	0	0	0	0	
6/4/2019	Lady Island	Sunny, calm	Low	0	0	0	0	0	0	0	0	0	0	
6/4/2019	Batt Bluff West	Sunny, slight chop	Mid	0	0	0	0	0	0	0	0	0	0	
6/4/2019	Doctor Island Fish Farm	Sunny, slight chop	Mld	0	0	0	0	0	0	0	0	0	0	
6/4/2019	Humphrey Rock	Sunny, calm	Mid	0	0	0	0	0	0	0	0	0	0	Strong tide.
6/4/2019	Oline Point	Sunny, calm	High	0	0	0	0	0	0	0	0	0	0	Strong tide.
6/4/2019	Pumish Point	Sunny, calm	High	0	0	0	0	0	0	0	0	0	0	
6/4/2019	Sargeaunt Pass	Sunny, calm	High	0	0	1	1	3	3	0	0	0	0	
6/4/2019	Lance Bay	Sunny, chop	Mid	0	0	0	0	0	0	0	0	0	0	Very choppy.
6/5/2019	Brent Bay	Calm, rainy	Low	0	0	0	0	1	1	0	0	0	0	170 mm cutthroat trout.
6/5/2019	Hoeya South	Calm, rainy	Low	16	16	4	4	0	0	0	0	0	0	
6/5/2019	Tomakstum Island	Calm, rainy	Low	0	0	0	0	0	0	0	0	0	0	120 mm Dolly Varden.
6/5/2019	Matsiu Bay	Calm, rainy	Low	0	0	0	0	1	1	0	0	0	0	
6/5/2019	Hoeya Sound	Calm, rainy	Low	0	0	0	0	2	2	0	0	0	0	300 mm coho jack. No search due to pouring rain and poor visibility.
6/5/2019	Mount Frederick Bay	Two 120mm CT, 130mm DV	Low	0	0	0	0	0	0	0	0	0	0	
6/5/2019	Shelterless Bay	Calm, overcast	Low	0	0	0	0	0	0	0	0	0	0	
6/5/2019	London Point	Calm, overcast	Low	0	0	0	0	0	0	0	0	0	0	
6/5/2019	Miller Point	Calm, overcast	Low	20	20	18	18	0	0	0	0	0	0	
6/5/2019	Kwatsi Bay	Overcast, rainy, calm	Mid	1	1	1	1	0	0	0	0	0	0	
6/5/2019	Glacier Falls Fish Farm	Calm, overcast	Mid	3000	30	10	1	0	0	0	0	0	0	Fish observed and set on.
6/5/2019	Viner Sound	Partly cloudy calm	Mid	0	0	0	0	9	9	0	0	0	0	
6/5/2019	Denham Island	Partly cloudy, breeze	Mld	1	1	4	4	1	1	0	0	0	0	No search due to chop. 1 cutthroat trout.
6/5/2019	Jumper Island	Partly cloudy, calm	Mid	0	0	2	2	0	0	0	0	0	0	Only one spot available to set.
6/5/2019	Wicklow Point	Sunny, choppy	High	0	0	0	0	0	0	0	0	0	0	No search due to chop.
6/5/2019	Arthur Point	Sunny, choppy	High	0	0	0	0	0	0	0	0	0	0	No search due to chop.
6/5/2019	Baker Island	Sunny, choppy	High	1	1	0	0	0	0	0	0	3	3	No search due to chop.
6/6/2019	Penphrase Pass	Sunny, calm.	Mid	0	0	0	0	0	0	0	0	0	0	6 sculpin.
6/6/2019	Harry Bay	Sunny, calm.	Mid	0	0	0	0	0	0	0	0	0	0	A few jumping fish observed, but not in a settable spot. No fish caught.

### Appendix III – Sea Lice Analysis Data

Date of seine	Site Name	Fish Species	Length (mm)	Weight (g)	LEP Co	LEP C1	LEP C2	LEP PAM	LEP PAF	LEP AM	LEP AF	LEP Total	CAL Co	CAL C1	CAL C2	CAL C3	CAL C4	CAL PAM	CAL PAF	CAL AM	CAL AF	CAL Total
12-Apr-19	Miller Point	Pink	39	0.31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Miller Point	Pink	30	0.24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Brent Bay	Chum	33	0.38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Pumish Point	Pink	34	0.29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Mount Frederick Bay	Pink	34	0.31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Mount Frederick Bay	Pink	33	0.36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Tomakstum Island	Pink	31	0.23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Tomakstum Island	Pink	30	0.24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Tomakstum Island	Pink	31	0.29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Tomakstum Island	Chum	35	0.42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Lance Bay	Chum	41	0.64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Lance Bay	Chum	36	0.41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Lance Bay	Pink	35	0.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Lance Bay	Pink	31	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Lance Bay	Pink	32	0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Lance Bay	Pink	34	0.32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Lance Bay	Pink	35	0.41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Lance Bay	Pink	34	0.38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Glacier Falls Fish Farm	Chum	36	0.43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Glacier Falls Fish Farm	Chum	37	0.42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Glacier Falls Fish Farm	Pink	29	0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Glacier Falls Fish Farm	Pink	33	0.33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Glacier Falls Fish Farm	Pink	32	0.28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Glacier Falls Fish Farm	Pink	32	0.27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Glacier Falls Fish Farm	Pink	32	0.26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Glacier Falls Fish Farm	Pink	33	0.29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Glacier Falls Fish Farm	Pink	32	0.27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Nimpkish Estuary	Chum	40	0.53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Shelterless Bay	Pink	30	0.21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Shelterless Bay	Chum	40	0.41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Kokish Estuary	Pink	35	0.31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Kokish Estuary	Pink	33	0.37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Kokish Estuary	Chum	37	0.34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Humphrey Rock	Coho	70	4.86	0	0	0	0	0	0	0	0	0	5	5	2	0	0	0	0	0	12
10-Apr-19	Humphrey Rock	Chum	38	0.42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Humphrey Rock	Pink	33	0.28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Humphrey Rock	Pink	27	0.16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	32	0.23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	29	0.18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	33	0.24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	32	0.27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	33	0.26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	34	0.32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	34	0.36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	33	0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	34	0.31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	33	0.28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Date of seine	Site Name	Fish Species	Length (mm)	Weight (g)	LEP Co	LEP C1	LEP C2	LEP PAM	LEP PAF	LEP AM	LEP AF	LEP Total	CAL Co	CAL C1	CAL C2	CAL C3	CAL C4	CAL PAM	CAL PAF	CAL AM	CAL AF	CAL Total
10-Apr-19	Doctor Island Fish Farm	Pink	32	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	30	0.21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	30	0.21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	33	0.29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	32	0.24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	32	0.31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	30	0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	31	0.24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	29	0.16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	32	0.26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	33	0.27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	34	0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	32	0.27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	30	0.18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	30	0.21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	31	0.23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	32	0.28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	31	0.21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	32	0.32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Pink	36	0.47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Chum	35	0.39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Chum	36	0.36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Chum	34	0.31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Chum	35	0.29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Chum	33	0.28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Chum	35	0.44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Chum	35	0.38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Chum	34	0.42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Chum	30	0.34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Doctor Island Fish Farm	Chum	35	0.32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Oline Point	Coho	78	7.11	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	6
10-Apr-19	Oline Point	Coho	84	6.55	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4
10-Apr-19	Oline Point	Coho	75	5.01	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	4
13-Apr-19	Penphrase Pass	Pink	30	0.23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Penphrase Pass	Pink	35	0.34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Penphrase Pass	Pink	35	0.33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Sutlej North	Chum	38	0.48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Sutlej North	Chum	40	0.59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Sutlej North	Chum	40	0.61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Sutlej North	Chum	36	0.54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Sutlej North	Chum	36	0.46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Sutlej North	Chum	40	0.51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Sutlej North	Chum	40	0.58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Sutlej North	Chum	35	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Sutlej North	Chum	35	0.36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Sutlej North	Chum	38	0.53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Sutlej North	Pink	35	0.32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Sutlej North	Pink	30	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Sutlej North	Pink	42	0.66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Sutlej North	Pink	35	0.36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Date of seine	Site Name	Fish Species	Length (mm)	Weight (g)	LEP Co	LEP C1	LEP C2	LEP PAM	LEP PAF	LEP AM	LEP AF	LEP Total	CAL Co	CAL C1	CAL C2	CAL C3	CAL C4	CAL PAM	CAL PAF	CAL AM	CAL AF	CAL Total
13-Apr-19	Denham Island	Pink	40	0.61	1	3	2	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Denham Island	Chum	37	0.41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Denham Island	Pink	33	0.35	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Chum	35	0.38	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
12-Apr-19	Baker Island	Chum	37	0.51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Chum	34	0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Chum	38	0.54	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4
12-Apr-19	Baker Island	Chum	36	0.56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Chum	36	0.44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Chum	35	0.38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Chum	38	0.42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Chum	42	0.99	1	1	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	1
12-Apr-19	Baker Island	Chum	36	0.46	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Chum	36	0.59	0	2	0	0	0	0	0	2	0	1	0	1	0	0	0	0	0	2
12-Apr-19	Baker Island	Chum	35	0.39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Chum	35	0.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Chum	35	0.45	0	2	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	1
12-Apr-19	Baker Island	Chum	36	0.54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Chum	35	0.44	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
12-Apr-19	Baker Island	Chum	36	0.43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Chum	35	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Chum	35	0.37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Chum	37	0.59	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	4
12-Apr-19	Baker Island	Chum	35	0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Chum	35	0.33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Chum	36	0.53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Chum	36	0.50	0	4	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Chum	40	0.69	1	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	2
12-Apr-19	Baker Island	Chum	35	0.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Chum	35	0.45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Chum	33	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Pink	33	0.31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Pink	32	0.28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Pink	35	0.43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Pink	35	0.43	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
12-Apr-19	Baker Island	Pink	34	0.31	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
12-Apr-19	Baker Island	Pink	34	0.28	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
12-Apr-19	Baker Island	Pink	34	0.33	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Pink	35	0.36	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Pink	32	0.29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Pink	33	0.29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Pink	34	0.33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Pink	32	0.27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Pink	34	0.37	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
12-Apr-19	Baker Island	Pink	33	0.31	1	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	2
12-Apr-19	Baker Island	Pink	36	0.44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Pink	35	0.36	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
12-Apr-19	Baker Island	Pink	32	0.23	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
12-Apr-19	Baker Island	Chum	34	0.37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Pink	34	0.32	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1

Date of seine	Site Name	Fish Species	Length (mm)	Weight (g)	LEP Co	LEP C1	LEP C2	LEP PAM	LEP PAF	LEP AM	LEP AF	LEP Total	CAL Co	CAL C1	CAL C2	CAL C3	CAL C4	CAL PAM	CAL PAF	CAL AM	CAL AF	CAL Total
12-Apr-19	Baker Island	Pink	35	0.36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Chum	37	0.56	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
12-Apr-19	Baker Island	Pink	34	0.33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Pink	32	0.30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
12-Apr-19	Baker Island	Pink	31	0.29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Pink	38	0.52	1	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Pink	33	0.38	0	1	0	0	0	0	0	1	0	1	2	0	0	0	0	0	0	3
12-Apr-19	Baker Island	Pink	31	0.24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Pink	35	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Pink	31	0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Pink	35	0.41	0	2	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	2
12-Apr-19	Baker Island	Pink	34	0.34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Baker Island	Pink	35	0.39	0	2	4	0	0	0	0	6	0	1	0	0	0	0	0	0	0	1
12-Apr-19	Baker Island	Pink	35	0.28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	36	0.45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	38	0.57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	35	0.37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	46	0.93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	37	0.53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	39	0.58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	38	0.49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	40	0.71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	40	0.65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	40	0.73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	43	0.79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	35	0.48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	41	0.78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	46	1.08	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	37	0.53	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
12-Apr-19	Hoeya Sound	Chum	35	0.41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	40	0.68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	41	0.69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	45	0.88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	36	0.48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	45	0.84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	35	0.43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	40	0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	38	0.62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	36	0.49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	35	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	36	0.51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	42	0.68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	53	1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	36	0.58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Chum	42	0.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Pink	32	0.29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Pink	30	0.23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Pink	30	0.21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Pink	32	0.31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Pink	31	0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Date of seine	Site Name	Fish Species	Length (mm)	Weight (g)	LEP Co	LEP C1	LEP C2	LEP PAM	LEP PAF	LEP AM	LEP AF	LEP Total	CAL Co	CAL C1	CAL C2	CAL C3	CAL C4	CAL PAM	CAL PAF	CAL AM	CAL AF	CAL Total
12-Apr-19	Hoeya Sound	Pink	30	0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Pink	28	0.18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Pink	32	0.32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Pink	30	0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Hoeya Sound	Pink	29	0.17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Pink	31	0.26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Pink	33	0.26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Pink	34	0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Pink	38	0.58	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
12-Apr-19	Jumper Island	Pink	37	0.46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Pink	32	0.26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Pink	30	0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Pink	35	0.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Pink	31	0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Pink	31	0.28	1	1	3	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Pink	32	0.32	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Pink	33	0.29	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
12-Apr-19	Jumper Island	Pink	32	0.34	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
12-Apr-19	Jumper Island	Pink	35	0.43	0	1	0	0	0	0	0	1	0	3	2	0	0	0	0	0	0	5
12-Apr-19	Jumper Island	Pink	31	0.29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Pink	33	0.31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Pink	38	0.47	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Pink	40	0.65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Chum	35	0.47	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
12-Apr-19	Jumper Island	Chum	37	0.51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Chum	40	0.65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Chum	43	0.76	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
12-Apr-19	Jumper Island	Chum	36	0.52	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3
12-Apr-19	Jumper Island	Chum	37	0.47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Chum	38	0.60	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
12-Apr-19	Jumper Island	Chum	32	0.42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Chum	34	0.43	0	1	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	2
12-Apr-19	Jumper Island	Chum	34	0.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Chum	34	0.34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Chum	35	0.40	0	1	2	0	0	0	0	3	0	3	2	0	0	0	0	0	0	5
12-Apr-19	Jumper Island	Chum	35	0.41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Chum	34	0.38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Jumper Island	Chum	42	0.83	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
12-Apr-19	Jumper Island	Chum	50	1.21	0	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
13-Apr-19	Wakeman 5	Chum	43	0.53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 5	Chum	36	0.32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 5	Chum	38	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 5	Chum	37	0.37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 5	Chum	38	0.39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 5	Chum	37	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 5	Chum	38	0.41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 5	Chum	37	0.37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 5	Chum	40	0.49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 5	Chum	41	0.61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 5	Chum	39	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Date of seine	Site Name	Fish Species	Length (mm)	Weight (g)	LEP Co	LEP C1	LEP C2	LEP PAM	LEP PAF	LEP AM	LEP AF	LEP Total	CAL Co	CAL C1	CAL C2	CAL C3	CAL C4	CAL PAM	CAL PAF	CAL AM	CAL AF	CAL Total
13-Apr-19	Wakeman 5	Chum	36	0.39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 5	Chum	36	0.38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 5	Chum	37	0.39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 5	Chum	39	0.54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 5	Chum	35	0.37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 5	Chum	33	0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 5	Chum	38	0.45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 5	Chum	36	0.38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 5	Chum	38	0.49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 5	Chum	38	0.42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 5	Chum	37	0.41	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 5	Chum	36	0.36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Viner Sound	Chum	36	0.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Viner Sound	Chum	36	0.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Viner Sound	Chum	36	0.36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Viner Sound	Chum	36	0.32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Viner Sound	Chum	36	0.32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Viner Sound	Chum	38	0.43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Viner Sound	Chum	34	0.31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Viner Sound	Chum	44	0.76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Viner Sound	Chum	33	0.31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Viner Sound	Chum	35	0.33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Viner Sound	Chum	37	0.39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Viner Sound	Chum	36	0.41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Viner Sound	Chum	37	0.45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Viner Sound	Chum	40	0.47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Viner Sound	Chum	38	0.41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Apr-19	Viner Sound	Pink	36	0.32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Chop Bay	Pink	33	0.27	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
13-Apr-19	Wakeman 4	Chum	56	1.76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 4	Chum	45	0.81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 4	Chum	46	0.92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 4	Chum	42	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 4	Chum	48	0.98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 4	Chum	40	0.45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 4	Chum	46	0.92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 4	Chum	48	0.93	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
13-Apr-19	Wakeman 4	Chum	46	0.90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 4	Chum	45	0.88	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
13-Apr-19	Wakeman 4	Chum	42	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 4	Chum	35	0.39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 4	Chum	45	0.84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Apr-19	Wakeman 4	Pink	32	0.33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Pink	34	0.33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	33	0.27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	35	0.37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	31	0.22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Date of seine	Site Name	Fish Species	Length (mm)	Weight (g)	LEP Co	LEP C1	LEP C2	LEP PAM	LEP PAF	LEP AM	LEP AF	LEP Total	CAL Co	CAL C1	CAL C2	CAL C3	CAL C4	CAL PAM	CAL PAF	CAL AM	CAL AF	CAL Total
10-Apr-19	Midsummer Island Fish Farm	Chum	34	0.33	0	2	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	2
10-Apr-19	Midsummer Island Fish Farm	Chum	34	0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	33	0.27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	40	0.60	0	1	0	0	0	0	0	1	0	3	1	0	0	0	0	0	0	4
10-Apr-19	Midsummer Island Fish Farm	Chum	33	0.28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	30	0.29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	32	0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	33	0.31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	35	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	36	0.38	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	34	0.33	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
10-Apr-19	Midsummer Island Fish Farm	Chum	33	0.26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	34	0.34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	34	0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	33	0.29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	33	0.29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	32	0.28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	30	0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	32	0.41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	34	0.32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	35	0.39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	32	0.28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Pink	35	0.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Chum	35	0.32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-19	Midsummer Island Fish Farm	Pink	32	0.28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Date of seine	Site Name	Fish Species	Length (mm)	Weight (g)	LEP Co	LEP C1	LEP C2	LEP PAM	LEP PAF	LEP AM	LEP AF	LEP Total	CAL Co	CAL C1	CAL C2	CAL C3	CAL C4	CAL PAM	CAL PAF	CAL AM	CAL AF	CAL Total
10-Apr-19	Midsummer Island Fish Farm	Pink	36	0.43	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	65	3.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	67	3.71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	60	3.98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	63	3.18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	60	2.60	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5-Jun-19	Glacier Falls Fish Farm	Pink	67	2.69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	65	3.64	0	0	0	1	0	0	0	1	0	2	1	0	0	0	0	0	0	3
5-Jun-19	Glacier Falls Fish Farm	Pink	70	3.82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	56	2.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	60	2.34	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5-Jun-19	Glacier Falls Fish Farm	Pink	65	3.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	64	3.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	68	3.92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	65	3.34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Chum	62	2.71	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3
5-Jun-19	Glacier Falls Fish Farm	Pink	85	7.03	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
5-Jun-19	Glacier Falls Fish Farm	Pink	70	3.90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	64	2.84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	60	2.28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	60	2.03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	64	2.67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	67	2.99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	63	2.82	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
5-Jun-19	Glacier Falls Fish Farm	Pink	73	3.77	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5-Jun-19	Glacier Falls Fish Farm	Pink	60	2.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	65	3.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	60	2.87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	68	4.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	70	3.67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Glacier Falls Fish Farm	Pink	67	3.44	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5-Jun-19	Glacier Falls Fish Farm	Pink	67	3.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Chum	54	1.90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Chum	60	2.46	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Chum	49	1.49	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Pink	57	2.00	0	0	0	0	0	3	2	5	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Chum	70	3.61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Chum	65	3.36	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Chum	58	2.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Chum	48	1.28	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5-Jun-19	Miller Point	Chum	48	1.32	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5-Jun-19	Miller Point	Chum	80	6.33	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Pink	66	3.98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Pink	60	2.54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Pink	59	2.08	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Pink	62	3.19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Pink	53	1.70	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5-Jun-19	Miller Point	Pink	59	2.24	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Chum	69	4.06	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1

Date of seine	Site Name	Fish Species	Length (mm)	Weight (g)	LEP Co	LEP C1	LEP C2	LEP PAM	LEP PAF	LEP AM	LEP AF	LEP Total	CAL Co	CAL C1	CAL C2	CAL C3	CAL C4	CAL PAM	CAL PAF	CAL AM	CAL AF	CAL Total
5-Jun-19	Miller Point	Chum	52	2.77	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
5-Jun-19	Miller Point	Chum	45	1.03	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Pink	55	1.99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Pink	60	2.35	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5-Jun-19	Miller Point	Pink	57	2.33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Pink	56	1.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Pink	60	2.77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Chum	55	2.26	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Pink	54	1.85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Pink	53	1.59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Pink	69	3.97	0	0	0	0	1	2	1	4	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Pink	59	2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Pink	58	2.36	0	0	0	0	0	2	1	3	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Pink	73	4.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Chum	65	3.44	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
5-Jun-19	Miller Point	Chum	56	2.28	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
5-Jun-19	Miller Point	Pink	65	3.40	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
5-Jun-19	Miller Point	Pink	65	3.31	0	0	0	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Miller Point	Chum	64	3.57	1	0	0	0	1	1	2	5	1	0	0	1	0	0	0	0	0	2
5-Jun-19	Miller Point	Chum	65	3.02	0	0	0	0	0	1	0	1	0	2	0	1	0	0	0	0	0	3
5-Jun-19	Miller Point	Chum	54	2.21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	66	2.71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	62	1.90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	65	3.67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4-Jun-19	Freshwater Bay	Pink	60	3.14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	68	3.38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	55	2.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	62	3.19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	44	1.04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	55	2.14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	54	2.18	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
4-Jun-19	Freshwater Bay	Pink	66	3.29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	62	2.53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	50	1.58	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
4-Jun-19	Freshwater Bay	Pink	53	1.88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	56	2.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	54	1.67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	60	2.59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	50	1.46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	74	3.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	51	1.43	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	67	3.32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	52	1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	61	2.89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	58	2.42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	61	2.81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	57	2.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	64	3.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	55	1.90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Pink	62	2.66	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1

Date of seine	Site Name	Fish Species	Length (mm)	Weight (g)	LEP Co	LEP C1	LEP C2	LEP PAM	LEP PAF	LEP AM	LEP AF	LEP Total	CAL Co	CAL C1	CAL C2	CAL C3	CAL C4	CAL PAM	CAL PAF	CAL AM	CAL AF	CAL Total
4-Jun-19	Freshwater Bay	Pink	58	2.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	69	4.06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	72	4.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	67	3.44	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	75	5.35	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
4-Jun-19	Freshwater Bay	Chum	84	7.44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	44	0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	84	6.66	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	75	4.89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	63	3.08	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	89	8.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	85	7.29	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1
4-Jun-19	Freshwater Bay	Chum	58	2.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	60	2.53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
4-Jun-19	Freshwater Bay	Chum	65	3.16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	70	3.54	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	62	3.28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	49	1.37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	61	2.90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	67	3.63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	71	3.63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	48	1.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	82	6.32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	55	2.08	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	59	2.46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	72	4.17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	66	3.32	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	74	4.85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	111	15.01	0	1	0	1	0	0	0	2	0	1	0	0	1	0	0	0	0	2
4-Jun-19	Freshwater Bay	Chum	108	14.34	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Chum	117	16.94	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4-Jun-19	Freshwater Bay	Chinook	107	14.87	0	1	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	2
4-Jun-19	Freshwater Bay	Coho	109	15.16	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
4-Jun-19	Freshwater Bay	Coho	110	15.03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jun-19	Freshwater Bay	Coho	109	17.92	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	1
5-Jun-19	Hoeya South	Chum	87	6.77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Hoeya South	Pink	76	5.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Hoeya South	Pink	79	5.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Hoeya South	Pink	85	5.67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Hoeya South	Pink	65	3.31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Hoeya South	Pink	74	3.97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Hoeya South	Chum	80	5.04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Hoeya South	Pink	79	5.13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Hoeya South	Pink	72	3.89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Hoeya South	Pink	81	6.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Hoeya South	Pink	73	4.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Hoeya South	Pink	74	3.92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Hoeya South	Pink	74	4.73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Hoeya South	Pink	81	5.14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Hoeya South	Chum	86	8.92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Date of seine	Site Name	Fish Species	Length (mm)	Weight (g)	LEP Co	LEP C1	LEP C2	LEP PAM	LEP PAF	LEP AM	LEP AF	LEP Total	CAL Co	CAL C1	CAL C2	CAL C3	CAL C4	CAL PAM	CAL PAF	CAL AM	CAL AF	CAL Total
5-Jun-19	Hoeya South	Chum	75	4.76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Hoeya South	Pink	69	3.22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Hoeya South	Pink	65	2.92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Hoeya South	Pink	64	3.16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Hoeya South	Pink	69	3.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Viner Sound	Coho	118	23.44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
5-Jun-19	Viner Sound	Coho	115	19.59	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	1
5-Jun-19	Viner Sound	Coho	129	30.02	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	2
5-Jun-19	Viner Sound	Coho	125	36.74	0	0	0	1	0	1	0	2	0	0	0	0	0	0	0	0	1	1
5-Jun-19	Viner Sound	Coho	117	21.60	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1
5-Jun-19	Viner Sound	Coho	123	26.17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Viner Sound	Coho	103	15.84	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5-Jun-19	Viner Sound	Coho	106	16.93	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	3
5-Jun-19	Viner Sound	Coho	124	26.15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5-Jun-19	Denham Island	Chum	51	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Denham Island	Chum	54	1.89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Denham Island	Chum	61	2.60	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Denham Island	Chum	56	2.15	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Denham Island	Pink	60	2.49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Denham Island	Coho	129	25.18	0	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
4-Jun-19	Sargeaunt Pass	Chum	113	16.04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
4-Jun-19	Sargeaunt Pass	Coho	99	14.60	0	0	0	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1
4-Jun-19	Sargeaunt Pass	Coho	93	9.26	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
4-Jun-19	Sargeaunt Pass	Coho	85	8.50	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Hoeya Sound	Coho	104	14.08	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Hoeya Sound	Coho	107	15.82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Brent Bay	Coho	88	8.05	0	1	2	0	0	0	0	3	0	1	3	0	0	0	0	0	0	4
5-Jun-19	Kwatsi Bay	Chum	58	2.06	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
5-Jun-19	Kwatsi Bay	Pink	55	2.25	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Baker Island	Stickleback	65	3.53	0	2	0	0	0	0	0	2	7	3	1	0	1	0	0	0	0	12
5-Jun-19	Baker Island	Stickleback	68	3.82	0	2	1	0	0	0	0	3	1	16	1	0	0	0	0	0	0	18
5-Jun-19	Baker Island	Stickleback	64	3.40	1	2	1	0	0	0	0	4	1	0	0	2	0	0	0	0	0	3
5-Jun-19	Baker Island	Pink	50	1.25	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Matsui Bay	Coho	81	7.65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jun-19	Jumper Island	Chum	50	1.53	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
5-Jun-19	Jumper Island	Chum	76	4.82	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0

## Appendix IV: 2016 – 2019 Comparisons

Surface water temperature comparison between data collected in the Broughton Archipelago between 2016 and 2019.

Site #	Site Name	April				May			June
		Temp. (°C) 2016	Temp. (°C) 2017	Temp. (°C) 2018	Temp. (°C) 2019	Temp. (°C) 2016	Temp. (°C) 2017	Temp. (°C) 2018	Temp. (°C) 2019
N/A	Hanson Island	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10.8
N/A	Freshwater Bay	N/A	N/A	N/A	N/A	N/A	N/A	N/A	11.2
N/A	Larsen Island Fish Farm	N/A	N/A	N/A	8.5	N/A	N/A	N/A	14.1
1	Swanson Island Fish Farm	9.1	8.1	8.6	8.2	9.8	12.6	9.7	12.1
2	Midsummer Island Fish Farm (Potts Bay)	9.1	8.1	8.7	8.1	9.8	12.9	9.3	12.6
3	Chop Bay	9.3	8.0	8.9	8.2	10.3	14.0	11.7	16.0
4	Lady Island	9.3	8.3	8.8	8.6	11.7	15.1	13.1	12.5
5	Doctor Island Fish Farm	9.6	8.7	8.6	8.4	12.4	14.4	16.2	17.3
6	Brent Bay	N/A	8.6	N/A	7.4	12.2	13.3	15.2	13.1
7	Shelterless Bay	N/A	9.4	8.5	8.5	11.8	13.3	15.5	14.1
8	Lance Bay	9.7	9.1	9.3	8.2	11.6	13.4	15.8	15.9
N/A	Batt Bluff West	N/A	N/A	N/A	8.5	N/A	N/A	N/A	14.6
9	Sargeaunt Pass	9.8	8.8	8.8	8.3	11.8	13.8	15.3	16.0
10	Humphrey Rock	10.1	9.1	9.0	8.3	11.1	14.5	14.8	16.1
11	Pumish Point	9.5	8.6	8.8	8.3	13.0	13.9	15.6	15.7
12	Oline Point	9.7	8.6	9.0	8.4	11.8	14.2	16.2	15.5
13	London Point	9.5	8.4	9.1	10.2	12.7	14.3	11.3	12.6
14	Miller Point	9.4	8.2	9.7	10.0	13.0	14.9	13.3	13.2
15	Kwatsi Point	9.5	8.1	9.5	9.7	13.1	15.6	11.7	13.7
16	Glacier Falls Fish Farm	9.4	8.3	10.4	9.8	12.3	14.1	11.3	13.4
17	Viner Sound	10.0	8.4	10.1	10.5	13.5	14.5	28.0	15.7
18	Denham Island	10.2	8.4	9.8	9.0	13.5	14.6	13.3	15.9
19	Baker Island	12.9	8.3	8.9	11.1	11.9	18.9	10.5	12.2
20	Jumper Island	10.6	8.2	8.7	11.2	10.7	13.1	10.5	15.8
21	Arthur Point	10.3	8.4	10.1	9.6	10.7	15.8	10.0	13.2
22	Wicklow Bay	9.9	8.3	9.8	10.0	10.7	13.1	10.2	14.0
A	Bennett Point Fish Farm (Noo-La)	9.2	8.4	9.0	N/A	13.8	13.8	16.1	N/A

Site #	Site Name	April				May			June
		Temp. (°C) 2016	Temp. (°C) 2017	Temp. (°C) 2018	Temp. (°C) 2019	Temp. (°C) 2016	Temp. (°C) 2017	Temp. (°C) 2018	Temp. (°C) 2019
B	Sambo Point	9.5	8.5	9.1	N/A	14.0	13.8	15.7	N/A
C	Penphrase Passage	10.7	8.8	8.9	9.3	14.4	15.2	14.8	13.7
D	Harry Bay	10.1	8.7	8.3	9.6	14.0	15.1	14.8	14.4
N/A	Wakeman 5	N/A	N/A	N/A	10.1	N/A	N/A	N/A	N/A
N/A	Wakeman 4	N/A	N/A	N/A	10.2	N/A	N/A	N/A	N/A
N/A	McKenzie Cove	N/A	N/A	N/A	9.8	N/A	N/A	N/A	N/A
E	Phillip Point West	10.7	9.0	8.5	10.3	13.9	16.0	15.4	N/A
F	Sutlej North	10.5	8.6	9.2	9.9	12.3	14.9	14.9	N/A
G	Codrington Point	10.6	8.7	8.7	9.8	14.3	15.4	15.2	N/A
H	Wehlis Bay Fish Farm	9.5	8.5	10.7	9.5	10.4	14.8	12	N/A
I	Alder Bay	9.6	8.5	8.7	9.6	11.0	13.8	10.7	N/A
J	Popplewell Point	9.6	8.5	8.6	10.3	10.5	15.4	11.5	N/A
N/A	Gwayasdums 1	N/A	N/A	N/A	10.1	N/A	N/A	N/A	N/A
N/A	Nimpkish Estuary	N/A	N/A	N/A	11.7	N/A	N/A	N/A	N/A
N/A	Kokish Estuary	N/A	N/A	N/A	9.1	N/A	N/A	N/A	N/A
<b>Average</b>		<b>9.9</b>	<b>8.5</b>	<b>9.2</b>	<b>9.2</b>	<b>12.1</b>	<b>14.5</b>	<b>13.7</b>	<b>14.1</b>

Surface water salinity comparison between data collected in the Broughton Archipelago between 2016 and 2019.

Site	Site Name	April				May			June
		Salinity (ppt) 2016	Salinity (ppt) 2017	Salinity (ppt) 2018	Salinity (ppt) 2019	Salinity (ppt) 2016	Salinity (ppt) 2017	Salinity (ppt) 2018	Salinity (ppt) 2019
N/A	Hanson Island	N/A	N/A	N/A	N/A	N/A	N/A	N/A	34.4
N/A	Freshwater Bay	N/A	N/A	N/A	N/A	N/A	N/A	N/A	32.4
N/A	Larsen Island Fish Farm	N/A	N/A	N/A	33.5	N/A	N/A	N/A	32.6
1	Swanson Island Fish Farm	29.7	31.3	30.3	28.6	30.4	25.5	33.9	33.6
2	Midsummer Island Fish Farm (Potts Bay)	30.0	31.7	30.0	33.6	30.4	26.4	33.8	33.9
3	Chop Bay	28.3	31.1	30.2	31.4	29.5	24.9	32.4	27.5
4	Lady Island	27.9	31.2	30.1	27.7	28.1	22.6	31.9	10.9
5	Doctor Island Fish Farm	27.1	28.1	30.6	32.2	24.9	21.0	26.1	22.7
6	Brent Bay	N/A	30.2	N/A	14.9	25.7	18.3	23.3	21.3
7	Shelterless Bay	N/A	28.7	30.3	32.6	24.6	20.3	19.4	14.3
8	Lance Bay	25.5	28.8	29.0	32.8	25.8	21.3	18.8	18.0
N/A	Batt Bluff West	N/A	N/A	N/A	31.5	N/A	N/A	N/A	23.8
9	Sargeaunt Pass	25.6	29.3	30.1	30.4	26.5	21.0	21.8	20.2
10	Humphrey Rock	26.5	29.8	29.8	32.5	26.3	20.8	26.5	22.1
11	Pumish Point	27.4	30.5	30.0	27.9	22.9	20.8	24.7	25.5
12	Oline Point	27.0	30.2	29.8	32.6	25.4	20.9	22.3	25.6
13	London Point	25.9	28.1	26.7	28.5	17.9	16.6	18.5	25.5
14	Miller Point	28.4	29.1	28.4	24.3	23.7	18.9	23.7	26.3
15	Kwatsi Point	28.5	30.8	28.8	31.1	22.0	18.4	29.0	28.8
16	Glacier Falls Fish Farm	28.7	30.6	27.6	26.9	25.1	20.9	29.8	28.7
17	Viner Sound	27.8	30.6	28.0	29.4	23.7	22.0	12.2	26.5
18	Denham Island	25.0	29.6	28.3	27.2	12.5	21.0	13.8	19.9
19	Baker Island	26.6	28.9	26.9	30.7	19.9	13.2	30.6	32.1
20	Jumper Island	27.0	30.5	29.9	32.9	28.2	24.7	31.2	23.6
21	Arthur Point	28.5	30.8	27.8	32.8	28.5	21.4	33.0	30.2
22	Wicklow Bay	28.4	30.6	27.1	31.4	28.3	23.8	32.2	31.7
A	Bennett Point Fish Farm (Noo-La)	29.0	31.3	21.8	N/A	21.0	23.4	31.0	N/A
B	Sambo Point	28.8	31.3	25.7	N/A	21.4	24.4	31.0	N/A
C	Penphrase	22.8	27.9	26.8	12.6	7.9	10.1	7.0	5.6



Site	Site Name	April				May			June
		Salinity (ppt) 2016	Salinity (ppt) 2017	Salinity (ppt) 2018	Salinity (ppt) 2019	Salinity (ppt) 2016	Salinity (ppt) 2017	Salinity (ppt) 2018	Salinity (ppt) 2019
	Passage								
D	Harry Bay	23.4	26.5	23.9	15.2	5.4	8.8	6.9	5.7
N/A	Wakeman 5	N/A	N/A	N/A	21.0	N/A	N/A	N/A	N/A
N/A	Wakeman 4	N/A	N/A	N/A	22.9	N/A	N/A	N/A	N/A
N/A	McKenzie Cove	N/A	N/A	N/A	16.2	N/A	N/A	N/A	N/A
E	Phillip Point West	19.3	26.5	5.3	20.4	5.6	7.9	6.8	N/A
F	Sutlej North	22.8	26.9	25.4	27.1	23.9	9.7	11.8	N/A
G	Codrington Point	23.8	28.5	28.6	14.6	11.3	11.2	12.8	N/A
H	Wehlis Bay Fish Farm	28.3	29.8	26.7	33.1	29.1	19.9	29.2	N/A
I	Alder Bay	27.9	30.0	30.8	33.1	27.1	22.0	32.8	N/A
J	Popplewell Point	28.2	29.4	30.6	33.2	29.1	19.9	33.1	N/A
N/A	Gwayasdums 1	N/A	N/A	N/A	33.8	N/A	N/A	N/A	N/A
N/A	Nimpkish Estuary	N/A	N/A	N/A	33.3	N/A	N/A	N/A	N/A
N/A	Kokish Estuary	N/A	N/A	N/A	33.3	N/A	N/A	N/A	N/A
	<b>Average</b>	<b>26.8</b>	<b>29.6</b>	<b>27.1</b>	<b>27.8</b>	<b>22.9</b>	<b>19.4</b>	<b>24.1</b>	<b>22.4</b>

A comparison of the results of analysis for sea lice infestation on samples collected by beach seine in the Broughton Archipelago between 2016 and 2019.

Species	Sample size (n)				Total # of fish infested				Prevalence (%)			
	2016	2017	2018	2019	2016	2017	2018	2019	2016	2017	2018	2019
Chum	512	562	281	246	152	131	55	58	29.7	23.3	19.6	23.6
Pink	430	411	356	230	146	77	52	49	33.9	18.7	14.6	21.3
Coho	25	19	11	24	14	2	3	19	56.0	10.5	27.3	79.2
Chinook	0	2	0	1	0	0	0	1	-	0	-	100.0
Threespine stickleback	2	1	5	3	0	1	2	3	0	100	40.0	100.0
<b>Total</b>	<b>969</b>	<b>995</b>	<b>653</b>	<b>504</b>	<b>312</b>	<b>211</b>	<b>112</b>	<b>130</b>	<b>32.3</b>	<b>21.2</b>	<b>17.2</b>	<b>25.8</b>

Species	Sample size (n)				Total # of lice observed				Abundance			
	2016	2017	2018	2019	2016	2017	2018	2019	2016	2017	2018	2019
Chum	512	562	281	246	262	257	77	122	0.5	0.46	0.27	0.50
Pink	430	411	356	230	242	130	80	101	0.6	0.32	0.22	0.44
Coho	25	19	11	24	24	8	5	59	1.0	0.42	0.45	2.46
Chinook	0	2	0	1	0	0	0	3	-	0	-	3.00
Threespine stickleback	2	1	5	3	0	5	3	42	0	5.00	0.60	14.00
<b>Total</b>	<b>969</b>	<b>995</b>	<b>653</b>	<b>504</b>	<b>528</b>	<b>400</b>	<b>165</b>	<b>327</b>	<b>0.54</b>	<b>0.40</b>	<b>0.25</b>	<b>0.65</b>

Comparisons of prevalence, abundance and sea lice species by month and site was not completed as catch data was variable from year to year and sites with a capture total of less than ten were lumped for data presentation.

The number of sea lice in each life stage by species identified on the chum salmon sample population from the Broughton Archipelago between 2016 and 2019.

LEP = *Lepeophtheirus salmonis* CAL = *Caligus clemensi*

Life Stage <sup>1</sup>	Number of Lice			
	2016	2017	2018	2019
LEP Co	16	21	11	5
LEP C1	21	28	13	27
LEP C2	39	29	8	7
LEP PAM	8	2	0	5
LEP PAF	4	1	0	1
LEP AM	6	0	0	5
LEP AF	4	0	0	3
<b>TOTAL LEP</b>	<b>98</b>	<b>81</b>	<b>32</b>	<b>53</b>
CAL Co	7	27	9	2
CAL C1	111	103	22	50
CAL C2	15	33	5	9
CAL C3	8	9	4	4
CAL C4	11	2	2	2
CAL PAM	0	0	0	0
CAL PAF	0	0	1	0
CAL AM	3	1	1	0
CAL AF	9	1	1	2
<b>TOTAL CAL</b>	<b>164</b>	<b>176</b>	<b>45</b>	<b>69</b>

<sup>1</sup> Lice life stage codes: Co = copepodid, C1-4 = chalimus 1-4, PAM = pre-adult male, PAF = pre-adult female, AM = adult male, AF = adult female

The number of sea lice in each life stage by species identified on the pink salmon sample population from the Broughton Archipelago between 2016 and 2019.

LEP = *Lepeophtheirus salmonis* CAL = *Caligus clemensi*

Life Stage <sup>1</sup>	Number of Lice			
	2016	2017	2018	2019
LEP Co	11	13	9	9
LEP C1	17	11	7	18
LEP C2	51	12	5	9
LEP PAM	7	0	0	1
LEP PAF	2	1	1	2
LEP AM	7	0	0	9
LEP AF	8	0	0	8
<b>TOTAL LEP</b>	<b>103</b>	<b>37</b>	<b>22</b>	<b>56</b>
CAL Co	1	8	4	2
CAL C1	74	50	43	35
CAL C2	26	21	9	6
CAL C3	16	6	2	1
CAL C4	6	3	0	0
CAL PAM	0	0	0	0
CAL PAF	0	2	0	0
CAL AM	5	3	0	1
CAL AF	12	0	0	0
<b>TOTAL CAL</b>	<b>140</b>	<b>93</b>	<b>58</b>	<b>45</b>

<sup>1</sup> Lice life stage codes: Co = copepodid, C1-4 = chalimus 1-4, PAM = pre-adult male, PAF = pre-adult female, AM = adult male, AF = adult female

A comparison of sea lice infestation rates on chum and pink salmon collected in the Broughton Archipelago between 2016 and 2019.

Chum by Year	<i>Caligus clemensi</i>			<i>Lepeophtheirus salmonis</i>		
	Prevalence	Abundance	Average Intensity	Prevalence	Abundance	Average Intensity
2016 (n=512)	20.3 %	0.32	1.6	13.3 %	0.19	1.4
2017 (n=562)	17.4 %	0.31	1.8	11.0 %	0.14	1.3
2018 (n=281)	12.5 %	0.16	0.13	10.3 %	0.11	1.1
2019 (n=246)	16.3 %	0.28	1.7	14.2 %	0.21	1.5

Pink by Year	<i>Caligus clemensi</i>			<i>Lepeophtheirus salmonis</i>		
	Prevalence	Abundance	Average Intensity	Prevalence	Abundance	Average Intensity
2016 (n=430)	24.4 %	0.33	1.3	15.3 %	0.24	1.5
2017 (n=411)	15.1 %	0.23	1.5	6.6 %	0.09	1.4
2018 (n=356)	11.5 %	0.16	1.4	5.6 %	0.06	1.1
2019 (n=230)	13.5 %	0.20	1.5	11.7 %	0.24	2.1