Wild Juvenile Salmonid Monitoring Program Discovery Islands 2019

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Summary

Beach seine sampling was conducted on behalf of Marine Harvest Canada, Cermaq Canada and Grieg Seafood BC Ltd. in the Discovery Islands, BC in 2019. The intent of sampling was to monitor sea lice abundance, prevalence and intensity on juvenile wild salmon and threespine stickleback within the Discovery Islands in support of the Aquaculture Stewardship Certification process for finfish aquaculture sites in the area.

Sampling was conducted at 29 sites within the Discovery Islands, BC during two separate sampling events in April and May 2019, selected to coincide with the peak outmigration period of juvenile salmonids. The sampling sites were chosen based on their locations relative to existing aquaculture sites in the area and adapted from historical purse seine sites sampled by Fisheries and Oceans Canada (DF) with three additional, new sites. Seven of the sites were in locations on the salmon migration route where out-migrating juvenile salmon would be unlikely to be exposed to existing aquaculture sites. These are considered 'pre-exposure' sites. Twenty two sites were in locations where migrating salmon would be exposed to existing aquaculture sites at some point along their migration route. These are considered 'post-exposure' 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 29 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.

Retained 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 analysis and 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 summary report documents the observed sea lice infestation rate on retained Pre-Exposure and Post-Exposure wild juvenile salmon collected in the Discovery Islands in 2019.

A total of 185 individual samples from Pre-Exposure beach seine sites underwent lab analysis for sea lice infestation in 2019. This included 126 chum, 80 pink, and 19 coho salmon. No chinook, sockeye, Atlantic salmon, or threespine stickleback were captured from Pre-Exposure sites in the Discovery Islands in 2019. Of the 185 fish collected from Pre-Exposure sites, 50 individuals were infested with 11 sea lice. The calculated prevalence for the total Pre-Exposure sample population was 27.0% and the sea lice abundance was 0.60 for the Pre-Exposure sample population collected in the Discovery Islands in 2019.

A total of 126 chum salmon were captured during sampling of Pre-Exposure sites, representing 56.0% of all captured Pre-Exposure fish. All 126 chum were kept for lab analysis for sea lice infestation. A total of 35 chum smolts were found to be infested with 62 lice resulting in a calculated prevalence of 27.8% and an abundance of 0.49 for the Pre-Exposure chum salmon sample population.

A total of 80 pink salmon were captured at Pre-Exposure sites, representing 35.6% of all captured Pre-Exposure fish. A total of 40 were kept for lab analysis for sea lice infestation. Of the 40 retained fish, 5 pink salmon were found to be infested with 9 lice resulting in a calculated prevalence of 12.5% and an abundance of 0.23 for the Pre-Exposure pink salmon sample population.

A total of 19 coho salmon were captured and retained from Pre-Exposure sites in 2019. Of these, 10 were infested with 40 sea lice, resulting in a calculated prevalence of 52.6% and an abundance of 2.11 for the Pre-Exposure coho salmon sample population.

For the total Pre-Exposure sample population (n=185), a total of 35 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 18 individuals and 76 *Caligus clemensi* sea lice were found on 39 of the samples analyzed in the lab. There were 7 samples infested with both *L. salmonis* and *C. clemensi*.

For the Pre-Exposure chum salmon sample population, a total of 11 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 9 juvenile chum salmon and 51

Caligus clemensi sea lice were found on 27 of the juvenile chum salmon. One juvenile chum salmon was infested with both *L. salmonis* and *C. clemensi*.

For the Pre-Exposure pink salmon sample population, a total of 9 *Caligus clemensi* sea lice of various life stages were identified on 5 juvenile pink. No *Lepeophtheirus salmonis* sea lice were identified on pink salmon from Pre-Exposure sites.

A total of 1021 individual samples from the Post-Exposure beach seine sites underwent lab analysis for sea lice infestation including 519 chum, 470 pink, 21 coho, 9 chinook, and 2 sockeye salmon. From the total Post-Exposure sample population 175 individuals were infested with 244 sea lice. The calculated prevalence for the total Post-Exposure sample population in the Discovery Islands in 2019 was 17.1%; the sea lice abundance was 0.24.

A total of 2063 Post-Exposure chum salmon were captured, representing 33.1% of all captured Post-Exposure samples. Of the 2063 chum captured, 519 were retained for lab analysis for sea lice infestation. A total of 120 chum smolts were found to be infested with 175 lice resulting in a calculated prevalence of 23.1% and an abundance of 0.34 for the Post-Exposure chum salmon sample population.

A total of 4144 pink salmon were captured, representing 66.4% of all captured Post-Exposure samples. Of the 4144 pinks captured, 470 were kept for lab analysis for sea lice infestation. A total of 53 pink salmon were found to be infested with 60 lice resulting in a calculated prevalence of 11.3% and an abundance of 0.13 for the Post-Exposure pink salmon sample population.

Two sockeye salmon were captured, retained and analyzed for sea lice infestation from Post-Exposure sites (0.03% of the capture population). Both fish were found to be infested with a combined total of 9 lice, resulting in a calculated prevalence of 100% and an abundance of 4.50 for the two Post-Exposure sockeye salmon.

A total of 21 coho and 9 chinook salmon were captured, retained and analyzed for sea lice infestation from Post-Exposure sites. No sea lice were found on any of the coho or chinook samples.

For the Post-Exposure sample population, a total of 178 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 135 individuals and 66 *Caligus clemensi*

sea lice were found on 50 of the samples analyzed in the lab. There were 10 samples infested with both *L. salmonis* and *C. clemensi*.

For the Post-Exposure chum salmon sample population, a total of 134 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 95 juvenile chum salmon and 41 *Caligus clemensi* sea lice were found on 33 juvenile chum salmon. There were 8 juvenile chum salmon infested with both *L. salmonis* and *C. clemensi*.

For the Post-Exposure pink salmon sample population, a total of 44 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 40 juvenile pink salmon and 16 *Caligus clemensi* sea lice were found on 15 of the juvenile pink salmon. Two juvenile pink salmon were infested with both *L. salmonis* and *C. clemensi*.

A total of 21 coho and 9 chinook salmon were collected from Post-Exposure sites in the Discovery Islands in 2019. No sea lice were found on any of these fish.

A total of 2 sockeye salmon were collected at the Raza site in May 2019. Both fish were infested with *Caligus clemensi.* One individual was infested with four lice and the other had five lice.

The following summary tables provide a comparison of Pre- and Post-Exposure sea lice infestation rates on pink and chum salmon collected in the Discovery Islands in 2019.

Species	Sample Location	Sample size (n)	Total number of lice observed	Total number of fish infested	Prevalence (%)	Abundance	Average Intensity
chum	Pre-Exposure	126	62	35	27.8	0.49	1.8
	Post-Exposure	519	175	120	23.1	0.34	1.5
pink	Pre-Exposure	40	9	5	12.5	0.23	1.5
	Post-Exposure	470	60	53	11.3	0.13	1.1

Fish Species	Sample Location	*Caligus clemensi*			*Lepeophtheirus salmonis*		
		Prevalence (%)	Abundance	Average Intensity	Prevalence (%)	Abundance	Average Intensity
chum (n=126)	Pre-Exposure	21.4	0.40	1.9	7.1	0.09	1.2
chum (n=519)	Post-Exposure	6.4	0.08	1.2	18.3	0.26	1.4
pink (n=40)	Pre-Exposure	12.5	0.23	1.8	0	0	-
pink (n=470)	Post-Exposure	3.2	0.03	1.1	8.5	0.09	1.1

A comparison of the prevalence, abundance and average intensity of sea lice species found on chum and pink salmon was completed for sample data collected in the Discovery Islands between 2017 and 2019. This data is presented in the following summary table with additional yearly comparisons presented in Appendix IV.

Year	Sample Location and Species	*Caligus clemensi*			*Lepeophtheirus salmonis*		
		Prevalence	Abundance	Average Intensity	Prevalence	Abundance	Average Intensity
2017	Pre-Exposure chum (n=395)	8.4%	0.22	2.6	1.8%	0.02	1.1
	Post-Exposure chum (n=727)	3.9%	0.04	1.1	3.2%	0.03	1.0
2018	Pre-Exposure chum (n=123)	22.0%	0.27	1.2	2.4%	0.02	1.0
	Post-Exposure chum (n=599)	1.3%	0.01	1.0	2.8%	0.03	1.0
2019	Pre-Exposure chum (n=126)	21.4%	0.40	1.9	7.1%	0.09	1.2
	Post-Exposure chum (n=519)	6.4%	0.08	1.5	18.3%	0.26	1.4
2017	Pre-Exposure pink (n=173)	13.3%	0.31	2.3	1.2%	0.01	1.0
	Post-Exposure pink (n=277)	5.0%	0.05	1.1	4.0%	0.04	1.1
2018	Pre-Exposure pink (n=125)	19.2%	0.25	1.3	4.8%	0.06	1.2
	Post-Exposure pink (n=309)	1.9%	0.03	1.7	1.9%	0.02	1.0
2019	Pre-Exposure pink (n=40)	12.5%	0.23	1.8	0%	0	-
	Post-Exposure pink (n=470)	3.2%	0.03	1.1	8.5%	0.09	1.1

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1.0 Introduction

At the request of Marine Harvest Canada, Cermaq Canada and Grieg Seafood BC Ltd. beach seine sampling to capture wild juvenile salmon and threespine stickleback to be analyzed for sea lice infestation took place at 29 sites in the Discovery Islands, BC (Figure 1). The sample collection occurred on April 24 – 26, 2019 and May 27 - 29, 2019. These dates were selected to coincide with the estimated peak outmigration dates of juvenile salmonids.

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* (*C. clemensi*) has been identified (Margolis and Arthur, 1979; McDonald and Margolis, 1995). *C. clemensi* infest an extremely wide range of natural hosts in the marine environment including salmonids and non-salmonids; while the natural hosts of *L. salmonis* 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 of these genera have similar life histories and developmental stages (Kabata, 1972; Johnson and Albright, 1991a). The 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 are attached to their host by a frontal filament. The final chalimus stage terminates as the sea lice detach from their hosts and are able to 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 generally range from approximately 6 °C to 13 °C. Research on sea lice abundance conducted in the Discovery Islands 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 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).

Marine Harvest Canada, Cermaq Canada and Grieg Seafood BC Ltd. requested monitoring of sea lice abundance, prevalence and intensity on juvenile wild salmon within the Discovery Islands in support of the 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 Discovery Islands in 2019. Data presented, including water quality, fish sample composition, size and sea lice infestation rates, have been divided into two sections based on the locations of the sample sites relative to aquaculture sites in the area and salmon migration routes (Table 1; Figure 2). A total of 29 sites were sampled in 2019. Seven of the sites were in locations on the salmon migration route where out-migrating juvenile salmon would be unlikely to be exposed to existing aquaculture sites. These are considered 'pre-exposure' sites. Twenty two sites were in locations where migrating salmon would be exposed to existing aquaculture sites at some point along their migration route. These are considered 'post-exposure' sites.

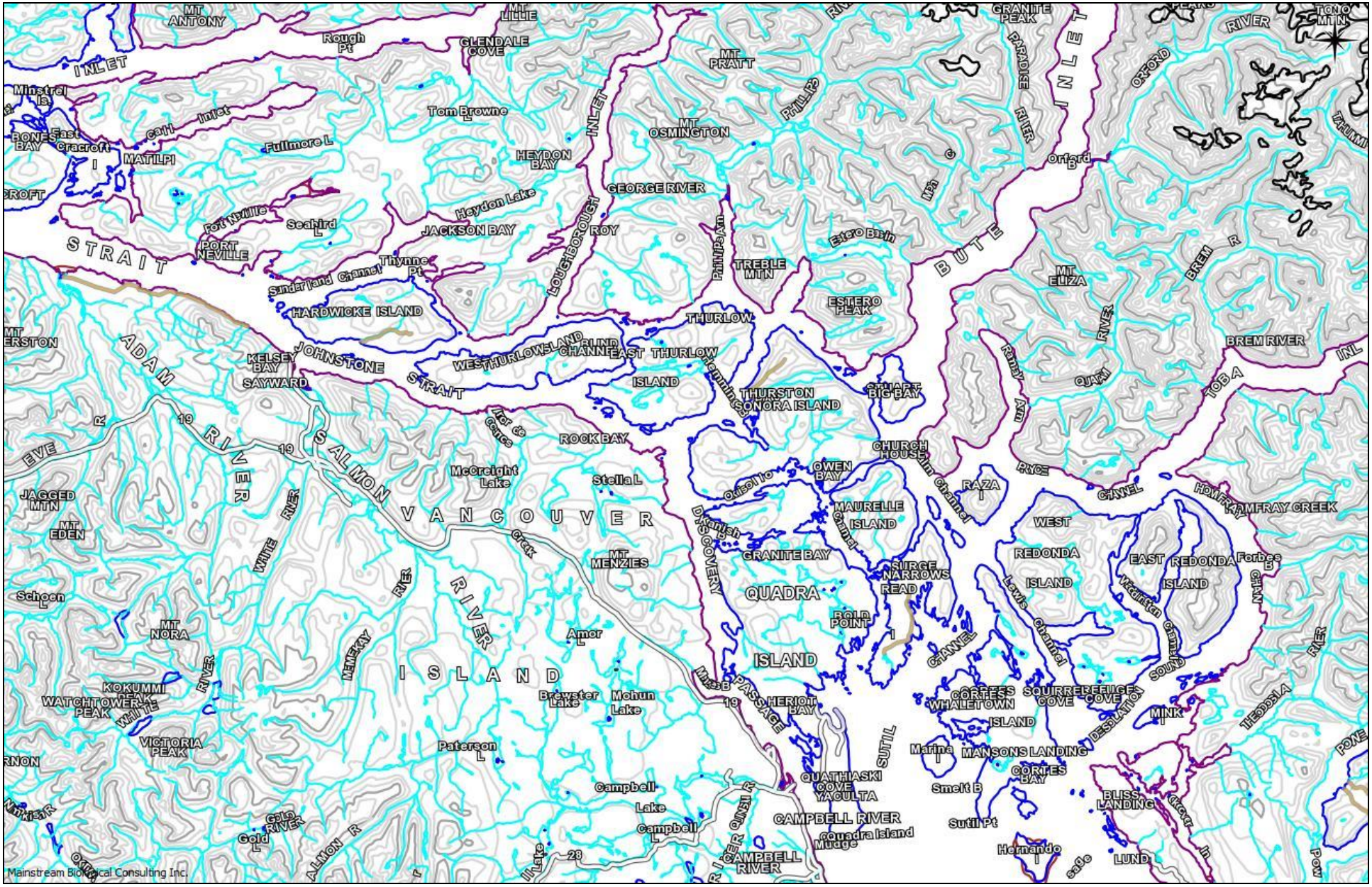

Figure 1: An overview map showing the location of the Discovery Islands.

2.0 Methods

The fish inspected for sea lice infestation were collected from 29 sites in the Discovery Islands, BC (Figure 2). These sites were chosen based on their locations relative to existing aquaculture sites in the area and adapted from historical purse seine sites sampled by Fisheries and Oceans Canada with three sites added. Two sampling events were completed in 2019, with the goal of sampling each site once during each sampling event. Sampling was conducted on April 24 – 26 and May 27 – 29, 2019.

2.1 Site Locations

The approximate locations of the 29 sampling sites are shown in Figure 2. GPS coordinates collected in the field for the sites are presented in Table 1.

Table 1: The site name and location coordinates of the 29 beach seine sites where fish were collected for sea lice analysis in the Discovery Islands in 2019.

Location	Site Name	Latitude	Longitude
Pre-Exposure	Francisco Point	50 00.467	125 09.031
	Marina Island	50 04.708	125 04.225
	Rebecca Spit	50 06.359	125 11.762
	Viner Point	50 07.886	125 07.809
	SE Hill Island	50 09.573	125 03.600
	Penn Island	50 11.018	125 01.449
	Deepwater Bay	50 10.669	125 19.641
Post-Exposure	Raza	50 19.184	124 58.959
	Raza North	50 21.057	125 02.542
	Okisollo	50 18.499	125 19.865
	Owen Bay	50 19.400	125 12.942
	Rock Bay	50 19.659	125 28.380
	Discovery	50 20.507	125 23.968
	Nodales	50 24.092	125 20.943
	Shoal Bay	50 27.467	125 22.061
	Fanny Bay	50 31.182	125 23.210
	Bickley Bay	50 26.684	125 23.825
	Cordero	50 26.953	125 32.677
	Knox Bay	50 23.618	125 36.348
	Bear Bay	50 21.799	125 38.099
	Chancellor Channel	50 24.563	125 43.797
	Race Passage	50 23.076	125 53.227
	Wellbore Channel	50 27.167	125 46.127
	Bessborough Bay	50 29.519	125 46.443
	Sunderland	50 28.212	125 50.607
	Blenkinsop Bay	50 28.732	125 59.983
	Primary 3	50 28.546	126 03.880
	Primary 1	50 25.805	126 01.769
	Beautiful Bay	50 26.895	126 05.066

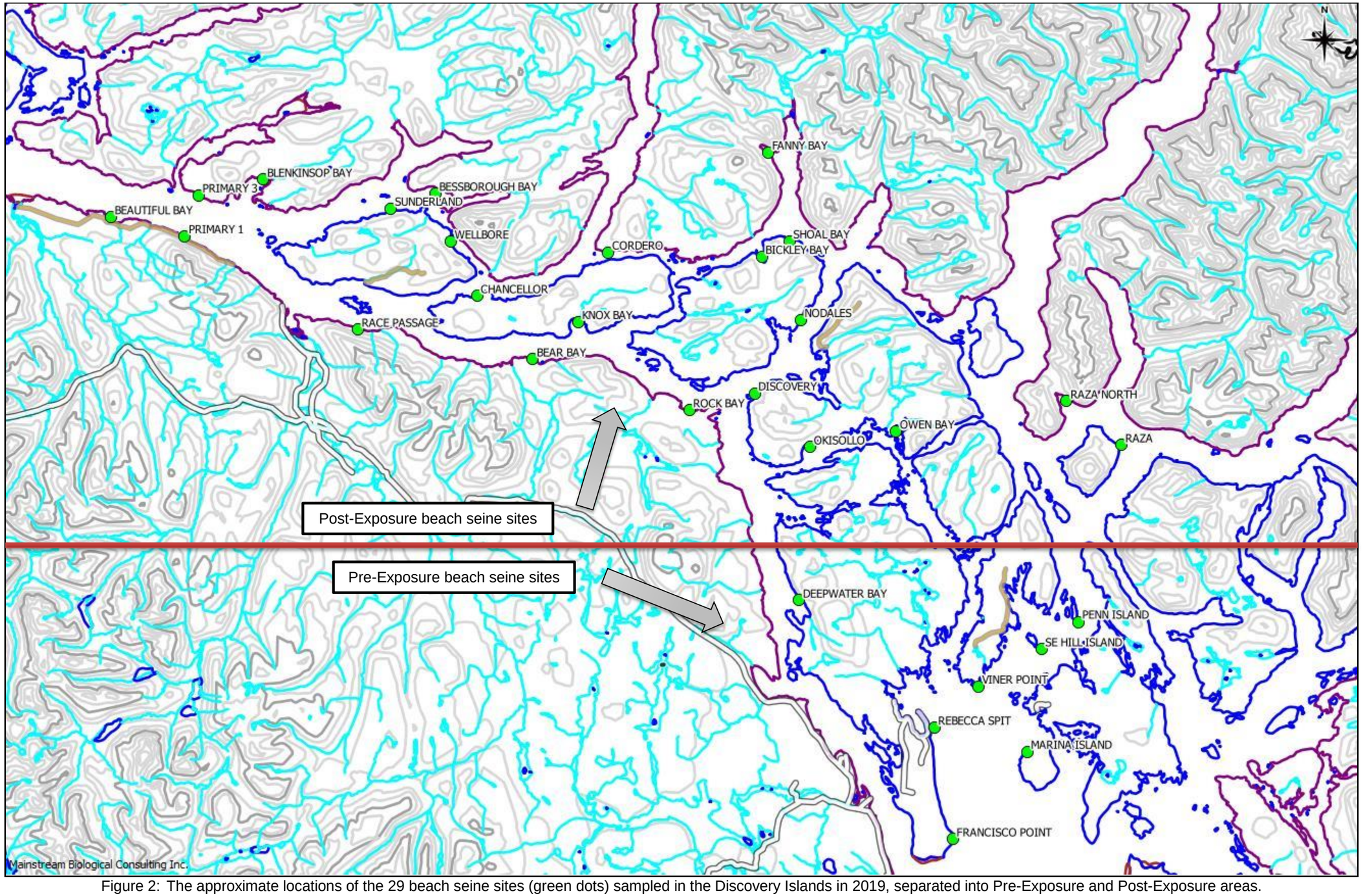

Figure 2: The approximate locations of the 29 beach seine sites (green dots) sampled in the Discovery Islands in 2019, separated into Pre-Exposure and Post-Exposure areas.

2.2 Field Procedures

The procedures implemented for beach seining, fish collection and field data recording in the Discovery Islands during the 2019 sampling period were adapted from those utilized by Fisheries and Oceans Canada (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. The centre bunt section consisted of one-quarter inch diameter diamond mesh, with two side panels (wings) of half-inch diameter diamond mesh. Floats were located every 30 cm along the top-line and a lead line weighted the bottom of the net.

A three or four person crew conducted the beach seine sets. All sampling sites were approached slowly by boat and one or two crewmembers were put ashore with the towline from one end of the beach seine net. The onshore crewmember held the towline at one side of the sample site, while another crewmember ensured the net deployed smoothly off the bow or side of the boat. The boat operator backed the boat in a wide semicircle towards the opposite side of the sample site and remained on the boat. When the net was fully deployed, the crewmember on the bow of the boat 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 slowly retrieved, the probe of an Oakton Salt 6+ meter was placed just below the water surface at the stern of the boat to collect salinity and water temperature. The meter was calibrated before each sampling trip.

Crewmembers retrieved the net evenly from both ends ensuring that the lead line remained as close to the bottom as possible. All 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 the 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 held the captured fish in the water.

All crew members participated in the collection of individual fish to ensure that captured fish remained in the net for as short a period of time as possible. The net was manipulated as needed in response to changing tides to ensure the captured fish remained in the net and were held in sufficient water to minimize contact with the net or with other fish.

A total of 30 individuals from each target species captured or all of the individuals present (if less than 30) were collected as samples for sea lice infestation analysis. Individual fish were "swam" into an appropriately sized whirlpac bag. All handling of fish was kept to a minimum.

Once all fish for retention were bagged, 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.

Information from each beach seine set was recorded in a standardized field form. The information recorded included the following:

- 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 week number (Week 1 or 2). Site sample bags were placed in a portable freezer, which was plugged into the boat's battery. The specimens were transferred to a freezer immediately upon return from the field.

The beach seine 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 sampling location.

The Cordero Bay, Fanny Bay, Owen Bay, and Okisollo sites in the Post-Exposure area were only sampled once in 2019, during the May 27 – 29 sampling period. Rough water conditions and mechanical issues prevented access to these sites during the April 24 – 26 sampling period.

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 either of the 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

All data collected was analysed and has been summarized into two separate sections based on location of the sample sites: Pre-Exposure and Post-Exposure. Pre-Exposure sites included the seven southernmost sites where no fish farm tenures currently exist. These included Francisco Point, Marina Island, Rebecca Spit, Viner Point, SE Hill Island, Penn Island and Deepwater Bay. Fish collected from this area are considered to not have been exposed to fish farms (Table 1, Figure 2). Post-Exposure sites included the 22 northernmost sites in the vicinity of existing fish farm tenures. Fish captured at these sites may or may not have migrated past fish farms (Table 1, Figure 2).

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 week.

Beach seine fish sample composition was summarized by species and site for each week. The fork lengths and weights of the juvenile salmon sample population were summarized to present minimum and maximum values as well as calculated averages. Sea lice infestation rates, including the number of infested fish and the number of sea lice identified, were determined for the Pre- and Post-Exposure 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 presentation and discussion of the number of sea lice found on fish specimens collected from each site within the Pre- and Post-Exposure areas during each of the sampling events in 2019.

3.0 Results

The following sections outline the results of beach seine collection and subsequent sea lice infestation analysis of juvenile salmonids and threespine stickleback collected from the Discovery Islands, BC, in 2019. The results are presented in two separate sections based on whether data was collected from Pre-Exposure (southern) or Post-Exposure (northern) sites.

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 provided in Appendix III.

Four Post-Exposure sites (Race Passage, Bessborough Bay, Primary 1 and Beautiful Bay) were not samples during the April 2019 sample period due to rough weather and safety concerns.

3.1 Pre-Exposure Water Quality Parameters

Surface measurements of water temperature and salinity collected at each of the seven Pre-Exposure sites are presented in Table 2. A complete dataset is also included in Appendix I.

Recorded surface water temperatures at Pre-Exposure sites ranged from a low of 9.6°C recorded at Marina Island on April 24, 2019, to a high of 22.2°C recorded at the same location on May 29, 2019 (Table 2; Appendix I). Average surface water temperatures increased from 10.5°C for April 24 - 26, 2019, to 18.7°C for May 27 – 29, 2019.

Recorded surface water salinity at Pre-Exposure sites ranged from a low of 24.0 ppt recorded at SE Hill Island on May 29, 2019, to a high of 31.8 ppt recorded at Deepwater Bay on April 26, 2019 (Table 2; Appendix I). The average surface water salinity decreased from 31.4 ppt for April 24 - 26, 2019, to 26.1 ppt for May 27 – 29, 2019.

Table 2: Surface water quality parameters collected at Pre-Exposure beach seine sites in the Discovery Islands in 2019.

Site Name	April 24 - 26		May 27 - 29	
	Temp. (°C)	Salinity (ppt)	Temp. (°C)	Salinity (ppt)
Francisco Point	9.7	31.5	18.2	27.8
Marina Island	9.6	31.2	22.2	24.8
Rebecca Spit	10.7	30.6	21.7	24.6
Viner Point	10.6	31.7	18.0	25.9
SE Hill Island	10.9	31.6	19.3	24.0
Penn Island	11.1	31.5	18.2	24.7
Deepwater Bay	10.6	31.8	13.3	30.7
Average	**10.5**	**31.4**	**18.7**	**26.1**

3.2 Post-Exposure Water Quality Parameters

Surface measurements of water temperature and salinity collected at each of the 22 Post-Exposure sites are presented in Table 3. A complete dataset is also included in Appendix I.

Recorded surface water temperatures at Post-Exposure sites ranged from a low of 8.9°C recorded at Beautiful Bay on April 25, 2019, to a high of 20.1°C recorded at Raza North on May 29, 2019 (Table 3; Appendix I). Calculated weekly average surface water temperatures increased from 11.3°C for April 24 – 26, 2019, to 14.6°C for May 27 – 29, 2019.

Recorded surface water salinity at Post-Exposure sites ranged from a low of 15.0 ppt recorded at Knox Bay on April 26, 2019, to a high of 35.4 ppt recorded at Bessborough Bay on May 27, 2019 (Table 3; Appendix I). The calculated weekly average surface water salinity increased slightly from 28.5 ppt for April 24 – 26, 2019, to 29.6 ppt for May 27 – 29, 2019.

Table 3: Surface water quality parameters collected at the Post-Exposure beach seine sites in the Discovery Islands in 2019.

Site Name	April 24 – 26		May 27 – 29	
	Temp. (°C)	Salinity (ppt)	Temp. (°C)	Salinity (ppt)
Raza	12.0	28.4	18.1	22.0
Raza North	12.6	27.2	20.1	17.2
Okisollo	9.2	26.1	11.0	31.9
Owen Bay	8.9	32.5	12.3	31.6
Rock Bay	9.6	33.3	12.0	31.7
Discovery	11.5	33.3	13.9	31.1
Nodales	11.5	34.2	12.7	33.6
Shoal Bay	11.8	30.3	15.5	35.4
Fanny Bay	11.0	16.0	12.3	31.9
Bickley Bay	10.6	32.2	15.2	31.1
Cordero	12.0	34.0	13.2	31.9
Knox Bay	9.4	31.0	16.4	33.4
Bear Bay	11.4	24.4	13.5	24.0
Chancellor Channel	12.5	15.0	17.4	26.5
Race Passage	Not sampled		13.7	28.7
Wellbore Channel	14.0	27.5	14.8	29.4
Bessborough Bay	Not sampled		15.7	29.2
Sunderland	12.3	29.0	15.7	28.8
Blenkinsop Bay	12.7	32.6	17.1	Not recorded
Primary 3	11.2	26.0	13.4	29.9
Primary 1	Not sampled		15.4	30.4
Beautiful Bay	Not sampled		12.3	32.0
Average	**11.3**	**28.5**	**14.6**	**29.6**

3.3 Fish Sample Composition

A total of 6494 fish were captured from all sites during beach seine sampling conducted in the Discovery Islands in 2019. Of those, 1206 individual fish (18.7%) were retained as sample specimens and underwent analysis for sea lice infestation (Table 4). The total collected fish and the representative percentage of the total beach seine capture population for each species are presented in Table 4. Chum salmon and pink salmon were the most common species captured during sampling in 2019. Of the 2189 chum salmon captured, 645 individuals (29.5%) were retained and underwent lab analysis. Of the 4224 pink salmon captured, 510 individuals (12.1%) were retained and underwent lab analysis. All of the 40 coho, 9 chinook and two sockeye salmon captured were retained and analyzed for sea lice infestation. No threespine stickleback or Atlantic salmon were captured during 2019 sampling in the Discovery Islands.

A summary of the total number of fish captured and collected as specimens at each site over the collection period is provided in Table 7. A complete dataset showing fish capture and collection totals by site in 2019 can be found in Appendix II. No fish were caught at the Chancellor Channel during either sampling period.

Table 4: The total of collected individuals of each fish species captured in the Discovery Islands, BC in April and May 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	2189 (33.7%)	645	29.5
pink salmon	4224 (65.0%)	510	12.1
coho salmon	40 (0.6%)	40	100
chinook salmon	9 (0.1%)	9	100
sockeye salmon	2 (0.03%)	2	100
All species	**6494**	**1206**	**18.7**

3.3.1 Pre-Exposure Sample Composition

A total of 225 fish were captured during beach seine sampling conducted in the Pre-Exposure sites in the Discovery Islands in 2019. Of those, 185 individual fish (82.2%) were collected as sample specimens and underwent analysis for sea lice infestation (Table 5). The total collected fish from each species and the percentage that it represents of the total Pre-Exposure capture population are shown in Table 5. Of the 126 chum salmon captured, 100% were retained and underwent lab analysis. Of the 80

pink salmon captured, 40 individuals (50.0%) were retained and underwent lab analysis. All of the 19 coho salmon captured were kept for lab analysis.

Table 5: The total number of collected individuals of each fish species captured in the Pre-Exposure sites in the Discovery Islands, BC, in April and May 2019, and the percentage of the total Pre-Exposure capture population that they represent.

Common Name	Capture Totals (% of total pre-exposure capture population)	Collection Totals	Collection %
chum salmon	126 (56.0%)	126	100
pink salmon	80 (35.6%)	40	50
coho salmon	19 (8.4%)	19	100
All species	**225**	**185**	**82.2**

3.3.2 Post-Exposure Sample Composition

A total of 6239 fish were captured during beach seine sampling conducted at the Post-Exposure sites in the Discovery Islands in 2019. Of those, 1021 individual fish (16.4%) were collected as sample specimens and underwent analysis for sea lice infestation (Table 6). The total collected fish from each species and the percentage that it represents of the total beach seine post exposure capture population is shown in Table 6. Of the 2063 chum salmon captured, 519 individuals (25.2%) were retained and underwent lab analysis. Of the 4144 pink salmon captured, 470 individuals (11.3%) were retained and underwent lab analysis. All 21 coho, 9 chinook and two sockeye salmon captured were retained and underwent lab analysis.

Table 6: The total of collected individuals of each fish species captured in the Post-Exposure sites in the Discovery Islands BC, in April and May 2019, and the percentage of the total Post-Exposure capture population that they represent.

Common Name	Capture Totals (% of total post-exposure capture population)	Collection Totals	Collection %
chum salmon	2063 (33.1%)	519	25.2
pink salmon	4144 (66.4%)	470	11.3
coho salmon	21 (0.3%)	21	100
chinook salmon	9 (0.1%)	9	100
sockeye salmon	2 (0.03%)	2	100
All species	**6239**	**1021**	**16.4**

Table 7: The number of captured fish (Capture Total) and the number of individual fish collected (Sample Total) from each of the 29 sample sites separated into Pre- and Post-Exposure totals in the Discovery Islands, BC in April and May 2019.

		Pink		Chum		Coho		Chinook		Sockeye		Capture Total	Sample Total
Site Location	**Site Name**	Capture Total	Sample Total	Capture Total	Sample Total	Capture Total	Sample Total	Capture Total	Sample Total	Capture Total	Sample Total		
Pre-Exposure	Francisco Point	1	1	25	25	0	0	0	0	0	0	26	26
	Marina Island	8	8	24	24	0	0	0	0	0	0	32	32
	Rebecca Spit	0	0	23	23	12	12	0	0	0	0	35	35
	Viner Point	0	0	12	12	0	0	0	0	0	0	12	12
	SE Hill Island	2	2	8	8	2	2	0	0	0	0	12	12
	Penn Island	0	0	5	5	0	0	0	0	0	0	5	5
	Deepwater Bay	69	29	29	29	5	5	0	0	0	0	103	63
Pre-Exposure Site Subtotals		**80**	**40**	**126**	**126**	**19**	**19**	**0**	**0**	**0**	**0**	**225**	**185**
Post-Exposure	Raza	0	0	20	20	0	0	0	0	2	2	22	22
	Raza North	0	0	478	58	0	0	0	0	0	0	478	58
	Okisollo	14	14	101	31	0	0	0	0	0	0	115	45
	Owen Bay	0	0	0	0	0	0	0	0	0	0	0	0
	Rock Bay	9	9	7	7	0	0	0	0	0	0	16	16
	Discovery	270	55	320	66	2	2	0	0	0	0	592	123
	Nodales	450	59	74	54	0	0	0	0	0	0	524	113
	Shoal Bay	420	61	92	60	1	1	8	8	0	0	521	130
	Fanny Bay	3	3	7	7	1	1	1	1	0	0	12	12
	Bickley Bay	2054	61	461	59	0	0	0	0	0	0	2515	120
	Cordero	114	24	186	36	0	0	0	0	0	0	300	60
	Knox Bay	1	1	3	3	0	0	0	0	0	0	4	4
	Bear Bay	401	30	6	6	1	1	0	0	0	0	408	37
	Chancellor Channel	0	0	0	0	0	0	0	0	0	0	0	0
	Race Passage	133	32	10	10	6	6	0	0	0	0	149	48
	Wellbore Channel	0	0	81	35	0	0	0	0	0	0	81	35
	Bessborough Bay	6	6	4	4	10	10	0	0	0	0	20	20
	Sunderland	53	33	7	7	0	0	0	0	0	0	60	40
	Blenkinsop Bay	0	0	180	30	0	0	0	0	0	0	180	30
	Primary 3	121	31	10	10	0	0	0	0	0	0	131	41
	Primary 1	74	30	8	8	0	0	0	0	0	0	82	38
	Beautiful Bay	21	21	8	8	0	0	0	0	0	0	29	29
Post Exposure Site Subtotals		**4144**	**470**	**2063**	**519**	**21**	**21**	**9**	**9**	**2**	**2**	**6239**	**1021**
Discovery Islands Totals		**4224**	**510**	**2189**	**645**	**40**	**40**	**9**	**9**	**2**	**2**	**6464**	**1206**

3.4 Pre-Exposure Fish Sample Size Statistics

Summary statistics for the Pre-Exposure sample population were completed for weight and fork length of chum, pink, and coho salmon (Table 5).

3.4.1 Chum Salmon

The weight of 126 chum smolts collected during the two sample events at Pre-Exposure sites in the Discovery Islands in 2019 ranged from 0.32 g to 11.85 g and averaged 1.72 g (SD = 2.1). The fork length of the chum smolts ranged from 30 mm to 108 mm and averaged 47 mm (SD = 16). Chum salmon weight and length data was summarized by month, showing an increase in both parameters in the sample population from April to May, 2019 (Table 8).

3.4.2 Pink Salmon

No pink salmon were captured at Pre-Exposure sites during the May 2019 sampling period. The weight of 40 pink smolts collected during April 2019 sampling at Pre-Exposure sites in the Discovery Islands in 2019 ranged from 0.08 g to 1.19 g and averaged 0.60 g (SD = 0.2). The fork length of the pink smolts ranged from 20 mm to 45 mm and averaged 36 mm (SD = 5) (Table 8).

3.4.3 Coho Salmon

No coho salmon were captured at Pre-Exposure sites during the April 2019 sampling period. The weight of 19 coho smolts collected during May 2019 sampling at Pre-Exposure sites in the Discovery Islands in 2019 ranged from 5.84 g to 33.85 g and averaged 11.88 g (SD = 7.2). The fork length of the coho smolts ranged from 76 mm to 130 mm and averaged 93 mm (SD = 14) (Table 8).

Table 8: Average weights and lengths of the Pre-Exposure chum, pink, and coho salmon collected in the Discovery Islands in 2019, summarized by month.

Species	Average Weight (g)		Average Length (mm)	
	April	May	April	May
Chum	0.60 (n=80)	3.67 (n=46)	38	65
Pink	0.60 (n=40)	n/a (n=0)	36	n/a
Coho	n/a (n=0)	11.88 (n=19)	n/a	93

3.5 Post-Exposure Fish Sample Size Statistics

Summary statistics for the Post-Exposure sample population were completed for weight and fork length of chum, pink, and coho salmon (Table 9). This was not completed for chinook (n=9) or sockeye salmon (n=2), as too few samples of these species were retained to provide meaningful analysis (Table 6).

3.5.1 Chum Salmon

The weight of 519 chum smolts collected during the two sample events at Post-Exposure sites in the Discovery Islands in 2019 ranged from 0.24 g to 14.92 g and averaged 1.87 g (SD = 1.8). The fork length of the chum smolts ranged from 30 mm to 112 mm and averaged 50 mm (SD = 13). Chum salmon weight and length data were summarized by month, showing an increase in both parameters in the sample population from April to May, 2019 (Table 9).

3.5.2 Pink Salmon

The weight of 470 pink smolts collected during the two sample events at Post-Exposure sites in the Discovery Islands in 2019 ranged from 0.15 g to 5.36 g and averaged 0.98 g (SD = 0.9). The fork length of the pink smolts ranged from 28 mm to 76 mm and averaged 42 mm (SD = 11). Pink salmon weight and length data were summarized by month, showing an increase in both parameters in the sample population from April to May, 2019 (Table 9).

3.5.3 Coho Salmon

The weight of 21 coho smolts collected during the sampling events at Post-Exposure sites in the Discovery Islands in 2019 ranged from 0.34 g to 15.89 g and averaged 9.64 g (SD = 3.9). The fork length of the coho smolts ranged from 32 mm to 110 mm and averaged 88 mm (SD = 17). The average length and weight of coho salmon collected in April 2019 were similar to those collected in May 2019 (Table 9).

Table 9: Average weights and lengths of the Post-Exposure chum, pink, and coho salmon collected in the Discovery Islands in 2019, summarized by month.

Species	Average Weight (g)		Average Length (mm)	
	April	May	April	May
Chum	0.94 (n=211)	2.51 (n=308)	42	56
Pink	0.37 (n=236)	1.60 (n=234)	34	51
Coho	9.75 (n=19)	8.60 (n=2)	56	82

3.6 Pre-Exposure Sea Lice Infestation Rates

The results of the laboratory analysis for the presence of sea lice on the Pre-Exposure sample population collected in the Discovery Islands in 2019 are presented in Table 10 and lab analysis data are included in Appendix III. A total of 185 samples were collected at the seven Pre-Exposure sites in the Discovery Islands in 2019 and inspected for sea lice infestation. A total of 50 individuals in the sample population (35 chum, 5 pink, and 10 coho salmon), were found to be infested with 296 sea lice (Table 10). These data include 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/lice 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 10). The sea lice prevalence in the 2019 Pre-Exposure sample population was 27.0% and the abundance was 0.60. Sea lice counts of both lice species (*L. salmonis and C. clemensi*) were combined for the prevalence and abundance calculations.

The intensity of sea lice infestation, defined as the number of sea lice on a single infested salmon ranged from one louse found on 24 individuals to a maximum of 7 lice found on one individual. The average intensity was calculated by dividing the total number of sea lice by the number of infested fish of each species (Table 10).

Table 10: Results of analysis for sea lice infestation on Pre-Exposure salmonid smolts collected by beach seine in the Discovery Islands, BC in 2019.

Species	Sample size (n)	Total number of lice observed	Total number of fish infested	Prevalence (%)	Abundance	Average Intensity
chum	126	62	35	27.8	0.49	1.8
pink	40	9	5	12.5	0.23	1.8
coho	19	40	10	52.6	2.11	4.0
Total	**185**	**111**	**50**	**27.0**	**0.60**	**2.2**

3.6.1 Pre-Exposure Infestation Rates on Chum Salmon

A total of 35 chum salmon were found to be infested with 62 sea lice (Table 10). The results of the laboratory analysis for sea lice infestation for the Pre-Exposure chum

salmon sample population are presented by site in Table 11. Sea lice counts of both sea lice species observed (*L. salmonis and C. clemensi*) were combined (Table 10 and 11). For the Pre-Exposure chum salmon sample population (n=126) there were more chum sampled, more infested individuals (n=20) and more sea lice (n=33) found on chum salmon collected in April than in May; however, the prevalence, abundance and average intensity of sea lice infestation were higher for those fish captured in May 2019 (Table 11).

A total of 35 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=126) collected in the Pre-Exposure Discovery Island sites in 2019 was 27.8%. Sea lice prevalence on chum salmon in 2019 was higher in May (32.6%) than in April (25.0%). The highest sea lice prevalence (100.0%) was at Penn Island in May 2019. Sea lice prevalence calculated by site for the total Pre-Exposure chum sample population was highly variable ranging from 0% at SE Hill Island in April to a high of 100.0% at Penn Island in May 2019 (Table 11).

A total of 62 sea lice were identified during laboratory analysis of retained chum salmon from Pre-Exposure sites. The abundance of sea lice on the Pre-Exposure chum salmon sample population (n=126) collected in the Discovery Islands in 2019 was 0.49. Sea lice abundance was calculated by week and by site and is presented in Table 11. During 2019 sampling, sea lice abundance on chum salmon was lower in April (0.41) compared to May (0.63). The highest sea lice abundance (1.0) was at Rebecca Spit in May 2019. Sea lice abundance calculated by site for the total Pre-Exposure chum sample population was also highly variable ranging from 0 at SE Hill Island in April to a high of 1.0 at Rebecca Spit in May (Table 11).

Table 11: The number of sea lice found on chum salmon collected from the Pre-Exposure sites in the Discovery Islands in 2019 summarized by site. Calculated sea lice prevalence, abundance and average intensity is also included by site.

Site	Sample Week													**Total Pre-Exposure Chum Sample Population**		
	April 24 – 26							May 27 – 29								
	# 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	**Prevalence (%)**	**Abundance**	**Average Intensity**
Francisco Point	8	2	0.57	2	25.0	0.25	1.0	17	2	2.16	3	11.8	0.18	1.5	**16.0**	**0.20**	**1.3**
Marina Island	24	12	0.77	22	50.0	0.92	1.8	0	0	-	0	-	-	-	**50.0**	**0.92**	**1.8**
Rebecca Spit	14	4	0.50	7	28.6	0.50	1.8	9	4	2.51	9	44.4	1.00	2.3	**34.8**	**0.70**	**2.0**
SE Hill Island	5	0	-	0	0.00	0.00	-	3	1	11.85	2	33.3	0.67	2.0	**12.5**	**0.25**	**2.0**
Viner Point	0	0	-	0	-	-	-	12	3	2.94	5	25.0	0.42	1.7	**25.0**	**0.42**	**1.7**
Penn Island	0	0	-	0	-	-	-	5	5	3.26	10	100.0	2.00	2.0	**100.0**	**2.00**	**2.0**
Deepwater Bay	29	2	0.70	2	6.9	0.07	1.0	0	0	-	0	-	-	-	**6.9**	**0.07**	**1.0**
TOTALS	**80**	**20**	**0.69**	**33**	**25.0**	**0.41**	**1.7**	**46**	**15**	**3.42**	**29**	**32.6**	**0.63**	**1.9**	**27.8**	**0.49**	**1.8**

3.6.2 Pre-Exposure Infestation Rates on Pink Salmon

A total of 40 pink salmon were found to be infested with 9 sea lice (Table 10). The results of the laboratory analysis for sea lice infestation for the Pre-Exposure pink salmon sample population are presented by site in Table 12. Sea lice counts of both sea lice species observed (*L. salmonis and C. clemensi*) were combined for the presentation of sea lice infestation, prevalence and abundance on the Pre-Exposure pink salmon sample population (Table 12). All of the Pre-Exposure pink salmon samples (n=40) were collected in April; no pink salmon were captured during May 2019 sampling (Table 12).

A total of 5 pink salmon were found to be infested with at least one sea louse. The prevalence of sea lice on the Pre-Exposure pink salmon sample population (n=40) collected in the Pre Exposure Discovery Island sites in 2019 was 12.5%. The highest sea lice prevalence (37.5%) was at Marina Island. Sea lice prevalence calculated by site for the Pre-Exposure pink sample population was variable ranging from 0.0% at Francisco Point and SE Hill Island to a high of 37.5% at Marina Island (Table 12).

A total of 9 sea lice were identified during laboratory analysis of retained Pre-Exposure pink salmon. The abundance of sea lice on the pink salmon sample population (n=40) collected in the Pre-Exposure Discovery Island sites in 2019 was 0.23. Sea lice abundance was calculated by week and by site and is presented in Table 12. The highest sea lice abundance (0.92) was at Marina Island in April 2019. Sea lice abundance calculated by site for the Pre-Exposure pink sample population was also highly variable ranging from 0.00 at Francisco Point and SE Hill Island to a high of 0.88 at Marina Island (Table 12).

Table 12: The number of sea lice found on pink salmon collected in the Pre-Exposure Discovery Island sites in 2019 summarized by site. Calculated sea lice prevalence, abundance and average intensity is also included by site.

Site	Sample Week														**Total Pre-Exposure Pink Sample Population**		
	April 24 – 26							May 27 – 29									
	# of Pinks Analyzed	# of Infested Pinks	Average Weight of Infested Pinks (g)	# of Lice	Prevalence (%)	Abundance	Average Intensity	# of Pinks Analyzed	# of Infested Pinks	Average Weight of Infested Pinks (g)	# of Lice	Prevalence (%)	Abundance	Average Intensity	**Prevalence (%)**	**Abundance**	**Average Intensity**
Francisco Point	1	0	-	0	0.0	0.00	-	0	0	-	-	-	-	-	**0.0**	**0.00**	**-**
Marina Island	8	3	0.52	7	37.5	0.88	2.3	0	0	-	-	-	-	-	**37.5**	**0.88**	**2.3**
Rebecca Spit	0	0	-	-	-	-	-	0	0	-	-	-	-	-	**-**	**-**	**-**
SE Hill Island	2	0	-	0	0.0	0.00	-	0	0	-	-	-	-	-	**0.0**	**0.00**	**-**
Viner Point	0	0	-	-	-	-	-	0	0	-	-	-	-	-	**-**	**-**	**-**
Penn Island	0	0	-	-	-	-	-	0	0	-	-	-	-	-	**-**	**-**	**-**
Deepwater Bay	29	2	0.82	2	6.9	0.07	1.0	0	0	-	-	-	-	-	**6.9**	**0.07**	**1.0**
TOTALS	**40**	**5**	**0.64**	**9**	**12.5**	**0.23**	**1.8**	**0**	**0**	**-**	**-**	**-**	**-**	**-**	**12.5**	**0.23**	**1.8**

3.7 Post-Exposure Sea Lice Infestation Rates

The results of the laboratory analysis for the presence of sea lice on the Post-Exposure sample population collected in the Discovery Islands in 2019 are presented in Table 13. The data recorded for each fish in the sample population during lab analysis are included in Appendix III. A total of 1021 samples were collected at the 22 Post-Exposure sites in the Discovery Islands in 2019 and were inspected for sea lice infestation. A total of 175 individuals comprising 120 chum, 53 pink, and two sockeye salmon were found to be infested with 244 sea lice in the Post-Exposure sample population (Table 13). These data include sea lice of either species (*L. salmonis and C. clemensi*). No sea lice were found on the 21 coho or 9 chinook salmon collected at Post-Exposure sites in 2019.

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 13). The sea lice prevalence in the Post-Exposure sample population collected in the Discovery Islands in 2019 was 17.1% and the abundance was 0.24. Sea lice counts of both species observed (*L. salmonis and C. clemensi*) were combined for the prevalence and abundance calculations.

The intensity of sea lice infestation is defined as the number of sea lice on a single infested salmon. There were 125 samples infested with one louse, 34 infested by two lice, 14 infested by three lice, one infested with four lice, and one individual infested with a maximum of five lice. The average intensity was calculated by dividing the total number of sea lice by the number of infested fish of each species (Table 13).

Table 13: Results of analysis for sea lice infestation on Post-Exposure samples collected by beach seine in the Discovery Islands, BC in 2019.

Species	Sample size (n)	Total number of lice observed	Total number of fish infested	Prevalence (%)	Abundance	Average Intensity
chum	519	175	120	23.1	0.34	1.5
pink	470	60	53	11.3	0.13	1.1
coho	21	0	0	0.0	0.00	-
chinook	9	0	0	0.0	0.00	-
sockeye	2	9	2	100.0	4.50	4.5
Total	**1021**	**244**	**175**	**17.1**	**0.24**	**1.4**

3.7.1 Post-Exposure Sea Lice Infestation Rates on Chum Salmon

A total of 120 chum salmon were found to be infested with 175 sea lice (Table 13). The results of the laboratory analysis for sea lice infestation for the Post-Exposure chum salmon sample population are presented by site in Table 14. Sea lice counts of both sea lice species observed (*L. salmonis and C. clemensi*) were combined for the presentation of sea lice infestation, prevalence and abundance on the Post-Exposure chum salmon sample population (Table 13 and 14). For the chum salmon sample population collected in 2019 (n=519), there were more infested individuals (83 chum) and more sea lice (n=123) found on chum salmon collected in May than in April (Table 14).

A total of 120 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=519) collected in the Post-Exposure Discovery Island sites in 2019 was 23.1%. The highest sea lice prevalence (75.0%) was at Nodales in May 2019 (Table 13). Sea lice prevalence calculated by site for the total Post-Exposure chum sample population was highly variable ranging from 0% at several sites to a high of 61.1% at Nodales (Table 14).

A total of 175 sea lice were identified during laboratory analysis of retained Post-Exposure chum salmon. The abundance of sea lice on the Post-Exposure chum salmon sample population (n=519) collected in the Discovery Islands in 2019 was 0.34. Sea lice abundance was calculated by week and by site and is presented in Table 14. The highest sea lice abundance (1.29) was at Nodales in May 2019. Sea lice abundance calculated by site for the total Post-Exposure chum sample population was also highly variable ranging from 0 at several sites to a high of 1.06 at Nodales (Table 14).

Sea lice prevalence, abundance and average intensity of infestation were higher in May than in April for the 2019 Post-Exposure chum salmon sample population.

Table 14: The number of sea lice found on chum salmon collected from the Post-Exposure sites in the Discovery Islands in 2019 summarized by site. Calculated sea lice prevalence, abundance and average intensity is also included by site.

Site	Sample Week														**Total Post-Exposure Chum Sample Population**		
	April 24 – 26							May 27 – 29									
	# 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	**Prevalence (%)**	**Abundance**	**Average Intensity**
Raza	6	0	-	0	0.0	0.00	-	14	6	3.51	9	42.9	0.64	1.5	**30.0**	**0.45**	**1.5**
Raza North	30	13	1.81	16	43.3	0.53	1.2	28	20	1.42	33	71.4	1.18	1.7	**56.9**	**0.84**	**1.5**
Okisollo	0	0	-	-	-	-	-	31	2	1.80	2	6.5	0.06	1.0	**6.5**	**0.06**	**1.0**
Owen Bay	0	0	-	-	-	-	-	0	0	-	-	-	-	-	**-**	**-**	**-**
Beautiful Bay	2	0	-	0	0.0	0.00	-	6	0	-	0	0.0	0.00	-	**0.0**	**0.00**	**-**
Rock Bay	1	0	-	0	0.0	0.00	-	6	0	-	0	0.0	0.00	-	**0.0**	**0.00**	**-**
Discovery	35	4	0.99	5	11.4	0.14	1.3	31	12	3.77	17	38.7	0.55	1.4	**24.2**	**0.33**	**1.4**
Nodales	30	15	1.68	26	50.0	0.87	1.7	24	18	1.79	31	75.0	1.29	1.7	**61.1**	**1.06**	**1.7**
Shoal Bay	30	0	-	0	0.0	0.00	-	30	4	0.96	4	13.3	0.13	1.0	**6.7**	**0.07**	**1.0**
Fanny Bay	0	0	-	-	-	-	-	7	1	1.50	1	14.3	0.14	1.0	**14.3**	**0.14**	**1.0**
Bickley Bay	28	4	0.92	4	14.3	0.14	1.0	31	8	2.36	9	25.8	0.29	1.1	**20.3**	**0.22**	**1.1**
Cordero	0	0	-	-	-	-	-	36	11	2.33	16	30.6	0.44	1.5	**30.6**	**0.44**	**1.5**
Knox Bay	0	0	-	-	-	-	-	3	0	-	0	0.0	0.00	-	**0.0**	**0.00**	**-**
Bear Bay	6	0	-	0	0.0	0.00	-	0	0	-	-	-	-	-	**0.0**	**0.00**	**-**
Chancellor Channel	0	0	-	-	-	-	-	0	0	-	-	-	-	-	**-**	**-**	**-**
Race Passage	0	0	-	-	-	-	-	10	1	1.34	1	10.0	0.10	1.0	**10.0**	**0.10**	**1.0**
Wellbore Channel	30	1	0.53	1	3.3	0.03	1.0	5	0	-	0	0.0	0.00	-	**2.9**	**0.03**	**1.0**
Bessborough Bay	2	0	-	0	0.0	0.00	-	2	0	-	0	0.0	0.00	-	**0.0**	**0.00**	**-**
Sunderland	0	0	-	-	-	-	-	7	0	-	0	0.0	0.00	-	**0.0**	**0.00**	**-**
Blenkinsop Bay	0	0	-	-	-	-	-	30	0	-	0	0.0	0.00	-	**0.0**	**0.00**	**-**
Primary 3	5	0	-	0	0.0	0.00	-	5	0	-	0	0.0	0.00	-	**0.0**	**0.00**	**-**
Primary 1	6	0	-	0	0.0	0.00	-	2	0	-	0	0.0	0.00	-	**0.0**	**0.00**	**-**
TOTALS	**211**	**37**	**1.54**	**52**	**17.5**	**0.25**	**1.4**	**308**	**83**	**2.19**	**123**	**26.9**	**0.40**	**1.5**	**23.1**	**0.34**	**1.5**

3.7.2 Post-Exposure Sea Lice Infestation Rates on Pink Salmon

A total of 53 pink salmon were found to be infested with 60 sea lice (Table 13). The results of the laboratory analysis for sea lice infestation for the Post-Exposure pink salmon sample population are presented by site in Table 15. Sea lice counts of both sea lice species observed (*L. salmonis and C. clemensi*) were combined for the presentation of sea lice infestation, prevalence and abundance on the Post-Exposure pink salmon sample population (Table 13 and 15). For the pink salmon sample population (n=470) there were more infested individuals (42 pink) and more sea lice (48 lice) found on pink salmon collected in May as compared to the 11 infested pink salmon with 12 lice collected in April 2019 (Table 15).

A total of 53 pink salmon were found to be infested with at least one louse. The prevalence of sea lice on the pink salmon sample population (n=470) collected in the Post-Exposure Discovery Island sites in 2019 was 11.3%. The highest sea lice prevalence (100.0%) was found at the Bear Bay and Primary 3 sites in May 2019; however, these results were based on samples of one and two fish, respectively. Sea lice prevalence calculated by site for the total Post-Exposure pink sample population was highly variable ranging from 0% at several sites to a high of 25.0% at Cordero (Table 15).

A total of 60 sea lice were identified during laboratory analysis of retained Post-Exposure pink salmon. The abundance of sea lice on the Post-Exposure pink salmon sample population (n=470) collected in the Discovery Islands in 2019 was 0.13. Sea lice abundance is presented by week and by site in Table 15. The highest sea lice abundance (1.00) was found at Bear Bay and Primary 3 in May 2019, though these results were based on sample sizes of one and two fish, respectively. Sea lice abundance calculated by site for the total Post-Exposure pink sample population was variable, ranging from 0 to a high of 0.38 at Cordero (Table 15).

Table 15: The number of sea lice found on pink salmon collected from the Post-Exposure sites in the Discovery Islands in 2019 summarized by site. Calculated sea lice prevalence, abundance and average intensity is also included by site.

Site	Sample Week														**Total Post-Exposure Chum Sample Population**		
	April 24 – 26							May 27 – 29									
	# of Pink Analyzed	# of Infested Pinks	Average Weight of Infested Pinks (g)	# of Lice	Prevalence (%)	Abundance	Average Intensity	# of Pinks Analyzed	# of Infested Pinks	Average Weight of Infested Pinks (g)	# of Lice	Prevalence (%)	Abundance	Average Intensity	**Prevalence (%)**	**Abundance**	**Average Intensity**
Raza	0	0	-	-	-	-	-	0	0	-	-	-	-	-	**-**	**-**	**-**
Raza North	0	0	-	-	-	-	-	0	0	-	-	-	-	-	**-**	**-**	**-**
Okisollo	0	0	-	-	-	-	-	14	1	0.82	1	7.1	0.07	1.0	**7.1**	**0.07**	**1.0**
Owen Bay	0	0	-	-	-	-	-	0	0	-	-	-	-	-	**-**	**-**	**-**
Beautiful Bay	17	0	-	0	0.0	0.00	-	4	0	-	0	0.0	0.00	-	**0.0**	**0.00**	**-**
Rock Bay	7	0	-	0	0.0	0.00	-	2	0	-	0	0.0	0.00	-	**0.0**	**0.00**	**-**
Discovery	25	2	0.86	3	8.0	0.12	1.5	30	5	0.98	5	16.7	0.17	1.0	**12.7**	**0.15**	**1.1**
Nodales	29	1	0.44	1	3.4	0.03	1.0	30	13	1.82	15	43.3	0.50	1.2	**23.7**	**0.27**	**1.1**
Shoal Bay	30	3	0.44	3	10.0	0.10	1.0	31	1	0.79	1	3.2	0.03	1.0	**6.6**	**0.07**	**1.0**
Fanny Bay	0	0	-	-	-	-	-	3	0	-	0	0.0	0.00	-	**0.0**	**0.00**	**-**
Bickley Bay	32	0	-	0	0.0	0.00	-	29	5	1.30	5	17.2	0.17	1.0	**8.2**	**0.08**	**1.0**
Cordero	0	0	-	-	-	-	-	24	6	2.57	9	25.0	0.38	1.5	**25.0**	**0.38**	**1.5**
Knox Bay	0	0	-	-	-	-	-	1	0	-	0	0.0	0.00	-	**0.0**	**0.00**	**-**
Bear Bay	29	0	-	0	0.0	0.00	-	1	1	0.96	1	100.0	1.00	1.0	**3.3**	**0.03**	**1.0**
Chancellor Channel	0	0	-	-	-	-	-	0	0	-	-	-	-	-	**-**	**-**	**-**
Race Passage	3	0	-	0	0.0	0.00	-	29	4	1.24	5	13.8	0.17	1.3	**12.5**	**0.16**	**1.3**
Wellbore Channel	0	0	-	-	-	-	-	0	0	-	-	-	-	-	**-**	**-**	**-**
Bessborough Bay	3	1	0.57	1	33.3	0.33	1.0	3	0	-	-	0.0	0.00	-	**16.7**	**0.17**	**1.0**
Sunderland	2	0	-	0	0.0	0.00	-	31	4	1.36	4	12.9	0.13	1.0	**12.1**	**0.12**	**1.0**
Blenkinsop Bay	0	0	-	-	-	-	-	0	0	-	-	-	-	-	**-**	**-**	**-**
Primary 3	29	4	0.34	4	13.8	0.14	1.0	2	2	0.53	2	100.0	1.00	1.0	**19.4**	**0.19**	**1.0**
Primary 1	30	0	-	0	0.0	0.00	-	0	0	-	-	-	-	-	**0.0**	**0.00**	**-**
TOTALS	**236**	**11**	**0.49**	**12**	**4.7**	**0.05**	**1.1**	**234**	**42**	**1.54**	**48**	**17.9**	**0.21**	**1.1**	**11.3**	**0.13**	**1.1**

3.7.3 Post-Exposure Sea Lice Infestation Rates on Coho and Chinook Salmon

A total of 21 coho and 9 chinook salmon were collected during beach seine sampling from the Post-Exposure sites in the Discovery Islands in 2019. None of the fish sampled were found to be infested with sea lice (Table 16).

Table 16: Coho and chinook salmon collected from the Post-Exposure sites in the Discovery Islands in 2019 summarized by site.

Site	# of fish analyzed	Date Collected	# of fish infested	# of lice
Discovery	2 coho	April 26	0	0
Shoal Bay	1 coho, 8 chinook	April 26	0	0
Fanny Bay	1 coho, 1 chinook	May 28	0	0
Bear Bay	1 coho	May 28	0	0
Race Passage	6 coho	April 25	0	0
Bessborough Bay	10 coho	April 25	0	0
TOTAL	**21 coho, 9 chinook**		**0**	**0**

3.7.4 Post-Exposure Sea Lice Infestation Rates on Sockeye Salmon

A total of two sockeye salmon were captured at Raza during sampling in May 2019. Both fish were found to be infested with a total of 9 sea lice resulting in a Post-Exposure species prevalence of 100% and an abundance of 4.50 (Table 13).

3.8 Pre-Exposure Infestation Rates by Sea Lice Species

For the Pre-Exposure sample population (n=185), a total of 35 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 18 individuals, and 76 *Caligus clemensi* sea lice were found on 39 individuals (Appendix III). Seven fish were infested with both *L. salmonis* and *C. clemensi*. Sea lice were found on all fish species collected from Pre-Exposure sites (chum, pink and coho salmon) (Table 10).

3.8.1 Pre-Exposure Infestation Rates by Sea Lice Species on Chum Salmon

An analysis of the species of sea lice identified on the 126 chum salmon collected at the Pre-Exposure sites in the Discovery Islands is presented in Table 17. A total of 11 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 9 juvenile chum salmon, and 51 *Caligus clemensi* sea lice were found on 27 of the juvenile chum salmon analyzed in the lab (Appendix III). One juvenile chum salmon was infested with both *L. salmonis* and *C. clemensi*. The sea lice species identified on chum salmon are also presented by site and by week in Table 18.

For the chum salmon sample population infested with *Caligus clemensi* sea lice (n=27) there were 14 samples infested with one louse, five with two lice, six with three lice, and one each with four and five lice. For the chum salmon sample population infested with *Lepeophtheirus salmonis* sea lice (n=9), eight individuals were infested with one louse and one individual had three lice.

Table 17: The number of sea lice in each life stage by species identified on the Pre-Exposure chum salmon sample population from the Discovery Islands in 2019. LEP = *Lepeophtheirus salmonis* CAL = *Caligus clemensi*

Life Stage[1]	April 24 – 26	May 27 – 29
LEP Co	1	3
LEP C1	1	2
LEP C2	0	2
LEP PAM	0	1
LEP PAF	0	0
LEP AM	0	1
LEP AF	0	0
TOTAL LEP	**2**	**9**
CAL Co	0	0
CAL C1	18	3
CAL C2	11	6
CAL C3	2	2
CAL C4	0	2
CAL PAM	0	1
CAL PAF	0	0
CAL AM	0	4
CAL AF	0	2
TOTAL CAL	**31**	**20**

[1] 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 18: The species of sea lice found on Pre-Exposure chum salmon collected in the Discovery Islands in 2019 summarized by site. LEP = *Lepeophtheirus salmonis* CAL = *Caligus clemensi*

Site	Sample Week								**TOTAL**		
	April 24 – 26				May 27 – 29						
	# of Chum Analyzed	# of Infested Chum	# of LEP	# of CAL	# of Chum Analyzed	# of Infested Chum	# of LEP	# of CAL	**# of Chum Analyzed**	**# of Infested Chum**	**# of Lice**
Francisco Point	8	2	0	2	17	2	1	2	**25**	**4**	**5**
Marina Island	24	12	0	22	0	0	0	0	**24**	**12**	**22**
Rebecca Spit	14	4	1	6	9	4	0	9	**23**	**8**	**16**
SE Hill Island	5	0	0	0	3	1	0	2	**8**	**1**	**2**
Viner Point	0	0	0	0	12	3	5	0	**12**	**3**	**5**
Penn Island	0	0	0	0	5	5	3	7	**5**	**5**	**10**
Deepwater Bay	29	2	1	1	0	0	0	0	**29**	**2**	**2**
TOTAL	80	20	**2**	**31**	46	15	**9**	**20**	**126**	**35**	**62**

3.8.2 Pre-Exposure Infestation Rates by Sea Lice Species on Pink Salmon

An analysis of the species of sea lice identified on the 40 pink salmon collected at Pre-Exposure sites in the Discovery Islands in 2019 is presented in Table 19. A total of nine *Caligus clemensi* sea lice were found on five of the juvenile pink salmon analyzed in the lab (Appendix III). No *Lepeophtheirus salmonis* sea lice were identified on juvenile pink salmon. Sea lice identified on pink salmon are also presented by site and week in Table 20.

For the pink salmon sample population infested with *Caligus clemensi* sea lice (n=5) there was one individual infested with one louse, two samples infested with two lice and two samples with three lice.

Table 19: The number of sea lice in each life stage by species identified on the Pre-Exposure pink salmon sample population from the Discovery Islands in 2019. LEP = *Lepeophtheirus salmonis* CAL = *Caligus clemensi*

Life Stage[1]	April 24 – 26	May 27 - 29
LEP Co	0	0
LEP C1	0	0
LEP C2	0	0
LEP PAM	0	0
LEP PAF	0	0
LEP AM	0	0
LEP AF	0	0
TOTAL LEP	**0**	**0**
CAL Co	0	0
CAL C1	6	0
CAL C2	1	0
CAL C3	2	0
CAL C4	0	0
CAL PAM	0	0
CAL PAF	0	0
CAL AM	0	0
CAL AF	0	0
TOTAL CAL	**9**	**0**

[1] 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 22: The species of sea lice found on Pre-Exposure pink salmon collected in the Discovery Islands in 2019 summarized by site. LEP = *Lepeophtheirus salmonis CAL = Caligus clemensi*

Site	Sample Week								**TOTAL**		
	April 24 – 26				May 27 – 29						
	# of Pinks Analyzed	# of Infested Pinks	# of LEP	# of CAL	# of Pinks Analyzed	# of Infested Pinks	# of LEP	# of CAL	**# of Pinks Analyzed**	**# of Infested Pinks**	**# of Lice**
Francisco Point	1	0	0	0	0	-	-	-	**1**	**0**	**0**
Marina Island	8	3	0	7	0	-	-	-	**8**	**3**	**7**
Rebecca Spit	0	-	-	-	0	-	-	-	**0**	**-**	**-**
SE Hill Island	2	0	0	0	0	-	-	-	**2**	**0**	**0**
Viner Point	0	-	-	-	0	-	-	-	**0**	**-**	**-**
Penn Island	0	-	-	-	0	-	-	-	**0**	**-**	**-**
Deepwater Bay	29	2	0	2	0	-	-	-	**29**	**2**	**2**
TOTAL	**40**	**5**	**0**	**9**	**0**	**-**	-	-	**40**	**5**	**9**

3.8.1 Pre-Exposure Infestation Rates by Sea Lice Species on Coho Salmon

An analysis of the species of sea lice identified on the 19 coho salmon collected at the Pre-Exposure sites in the Discovery Islands is presented in Table 23. A total of 24 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 9 juvenile coho salmon, and 16 *Caligus clemensi* sea lice were found on 7 of the juvenile coho salmon analyzed in the lab (Appendix III). Six of the juvenile coho salmon were infested with both *L. salmonis* and *C. clemensi*. No coho were captured during sampling in April; all 19 salmon sampled were captured during May 2019 sampling at Deepwater Bay, Rebecca Spit, and SE Hill Island. All of the infested coho salmon (n=10) were captured at the Rebecca Spit site. Sea lice species identified on coho salmon are also presented by site and by week in Table 24.

For the coho salmon sample population infested with *Lepeophtheirus salmonis* sea lice (n=9) there were two samples infested with one louse, four with two lice, and one each with three, four and seven lice. For the coho salmon sample population infested with *Caligus clemensi* sea lice (n=7), two individuals were infested with one louse, one sample had two lice and three samples had three lice.

Table 23: Sea lice identified by life stage and species on Pre-Exposure coho salmon from the Discovery Islands in 2019. LEP = *Lepeophtheirus salmonis* CAL = *Caligus clemensi*

Life Stage[1]	April 24 – 26	May 27 – 29
LEP Co	0	13
LEP C1	0	8
LEP C2	0	1
LEP PAM	0	0
LEP PAF	0	1
LEP AM	0	1
LEP AF	0	0
TOTAL LEP	**0**	**24**
CAL Co	0	2
CAL C1	0	7
CAL C2	0	2
CAL C3	0	5
CAL C4	0	0
CAL PAM	0	0
CAL PAF	0	0
CAL AM	0	0
CAL AF	0	0
TOTAL CAL	**0**	**16**

[1] 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 24: The species of sea lice found on Pre-Exposure coho salmon collected in the Discovery Islands in 2019 summarized by the site. LEP = *Lepeophtheirus salmonis* CAL = *Caligus clemensi*

Site	Sample Week								**TOTAL**		
	April 24 – 26				May 27 – 29						
	# of Coho Analyzed	# of Infested Coho	# of LEP	# of CAL	# of Coho Analyzed	# of Infested Coho	# of LEP	# of CAL	**# of Coho Analyzed**	**# of Infested Coho**	**# of Lice**
Francisco Point	0	-	-	-	0	-	-	-	**0**	**-**	**-**
Marina Island	0	-	-	-	0	-	-	-	**0**	**-**	**-**
Rebecca Spit	0	-	-	-	12	10	24	16	**12**	**10**	**40**
SE Hill Island	0	-	-	-	2	0	0	0	**2**	**0**	**0**
Viner Point	0	-	-	-	0	-	-	-	**0**	**-**	**-**
Penn Island	0	-	-	-	0	-	-	-	**0**	**-**	**-**
Deepwater Bay	0	-	-	-	5	0	0	0	**5**	**0**	**0**
TOTAL	**0**	-	-	-	**19**	**10**	**24**	**16**	**19**	**10**	**40**

3.9 Post-Exposure Sea Lice Infestation Rates

Within the 2019 Post-Exposure sample population, a total of 178 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 135 individuals and 66 *Caligus clemensi* sea lice were found on 50 of the samples analyzed in the lab (Appendix III). There were 10 samples infested with both *L. salmonis* and *C. clemensi*.

3.9.1 Post-Exposure Infestation Rates by Sea Lice Species on Chum Salmon

An analysis of the species of sea lice identified on the 519 chum salmon collected in the Post Exposure sites in the Discovery Islands is presented in Table 25. A total of 134 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 95 juvenile chum salmon and 41 *Caligus clemensi* sea lice were found on 33 of the juvenile chum salmon analyzed in the lab (Appendix III). There were eight juvenile chum salmon infested with both *L. salmonis* and *C. clemensi*. The sea lice species identified on chum salmon are also presented by site by week in Table 26.

For the chum salmon sample population infested with *Lepeophtheirus salmonis* sea lice (n=95), 64 samples were infested with one louse, 23 with two lice, and eight with three lice. For the chum salmon sample population infested with *Caligus clemensi* sea lice (n=33), 26 of the infested chum had one louse, six had two lice, and four had three lice.

Table 25: The number of sea lice in each life stage by species identified on the Post-Exposure chum salmon sample population from the Discovery Islands in 2019. LEP = *Lepeophtheirus salmonis* CAL = *Caligus clemensi*

Life Stage[1]	April 24 – 26	May 27 – 29
LEP Co	7	16
LEP C1	7	25
LEP C2	16	41
LEP PAM	1	10
LEP PAF	1	10
LEP AM	0	0
LEP AF	0	0
TOTAL LEP	**32**	**102**
CAL Co	2	5
CAL C1	8	10
CAL C2	4	1
CAL C3	3	2
CAL C4	1	1
CAL PAM	1	0
CAL PAF	0	0
CAL AM	1	2
CAL AF	0	0
TOTAL CAL	**20**	**21**

[1] 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 26: The species of sea lice found on Post-Exposure chum salmon collected in the Discovery Islands in 2019 summarized by site. LEP = *Lepeophtheirus salmonis CAL = Caligus clemensi*

Site	Sample Week								**TOTAL**		
	April 24 – 26				May 27 – 29						
	# of Chum Analyzed	# of Infested Chum	# of LEP	# of CAL	# of Chum Analyzed	# of Infested Chum	# of LEP	# of CAL	**# of Chum Analyzed**	**# of Infested Chum**	**# of Lice**
Raza	6	0	0	0	14	6	7	2	**20**	**6**	**9**
Raza North	30	13	9	7	28	20	33	0	**58**	**33**	**49**
Okisollo	0	-	-	-	31	2	1	1	**31**	**2**	**2**
Owen Bay	0	-	-	-	0	-	-	-	**0**	**-**	**-**
Beautiful Bay	2	0	0	0	6	0	0	0	**8**	**0**	**0**
Rock Bay	1	0	0	0	6	0	0	0	**7**	**0**	**0**
Discovery	35	4	3	2	31	12	11	6	**66**	**16**	**22**
Nodales	30	15	17	9	24	18	24	7	**54**	**33**	**57**
Shoal Bay	30	0	0	0	30	4	1	3	**60**	**4**	**4**
Fanny Bay	0	-	-	-	7	1	1	0	**7**	**1**	**1**
Bickley Bay	28	4	3	1	31	8	7	2	**59**	**12**	**13**
Cordero	0	-	-	-	36	11	16	0	**36**	**11**	**16**
Knox Bay	0	-	-	-	3	0	0	0	**3**	**0**	**0**
Bear Bay	6	0	0	0	0	-	-	-	**6**	**0**	**0**
Chancellor Channel	0	-	-	-	0	-	-	-	**0**	**-**	**-**
Race Passage	0	-	-	-	10	1	1	0	**10**	**1**	**1**
Wellbore Channel	30	1	0	1	5	0	0	0	**35**	**1**	**1**
Bessborough Bay	2	0	0	0	2	0	0	0	**4**	**0**	**0**
Sunderland	0	-	-	-	7	0	0	0	**7**	**0**	**0**
Blenkinsop Bay	0	-	-	-	30	0	0	0	**30**	**0**	**0**
Primary 3	5	0	0	0	5	0	0	0	**10**	**0**	**0**
Primary 1	6	0	0	0	2	0	0	0	**8**	**0**	**0**
TOTAL	**211**	**37**	**32**	**20**	**308**	**83**	**102**	**21**	**519**	**120**	**175**

3.9.2 Post Exposure Infestation Rates by Sea Lice Species on Pink Salmon

An analysis of the species of sea lice identified on the 470 pink salmon collected at the Post-Exposure sites in the Discovery Islands is presented in Table 27. A total of 44 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 40 juvenile pink salmon and 16 *Caligus clemensi* sea lice were found on 15 of the juvenile pink salmon analyzed in the lab (Appendix III). Two juvenile pink salmon were infested with both *L. salmonis* and *C. clemensi*. The sea lice species identified on pink salmon are also presented by site and by week in Table 28.

For the pink salmon sample population infested with *Lepeophtheirus salmonis* sea lice (n=40), 37 of the samples were infested with one louse, two were infested with two lice, and one sample had three lice. For the pink salmon sample population infested with *Caligus clemensi* sea lice (n=15) there were 14 samples were infested with one louse and one sample was infested with two lice.

Table 27: The number of sea lice in each life stage by species identified on the Post-Exposure pink salmon sample population from the Discovery Islands in 2019. LEP = *Lepeophtheirus salmonis* CAL = *Caligus clemensi*

Life Stage[1]	April 24 - 26	May 27 – 29
LEP Co	3	3
LEP C1	1	5
LEP C2	2	13
LEP PAM	0	5
LEP PAF	0	10
LEP AM	0	1
LEP AF	0	1
TOTAL LEP	**6**	**38**
CAL Co	0	0
CAL C1	3	7
CAL C2	2	0
CAL C3	0	2
CAL C4	0	1
CAL PAM	0	0
CAL PAF	0	0
CAL AM	1	0
CAL AF	0	0
TOTAL CAL	**6**	**10**

[1] 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 28: The species of sea lice found on Post-Exposure pink salmon collected in the Discovery Islands in 2019 summarized by site. LEP = *Lepeophtheirus salmonis* CAL = *Caligus clemensi*

Site	Sample Week								**TOTAL**		
	April 24 – 26				May 27 – 29						
	# of pink Analyzed	# of Infested pink	# of LEP	# of CAL	# of pink Analyzed	# of Infested pink	# of LEP	# of CAL	**# of pink Analyzed**	**# of Infested pink**	**# of Lice**
Raza	0	-	-	-	0	-	-	-	**0**	**-**	**-**
Raza North	0	-	-	-	0	-	-	-	**0**	**-**	**-**
Okisollo	0	-	-	-	14	1	1	0	**14**	1	**1**
Owen Bay	0	-	-	-	0	-	-	-	**0**	**-**	**-**
Beautiful Bay	17	0	0	0	4	0	0	0	**21**	0	**0**
Rock Bay	7	0	0	0	2	0	0	0	**9**	0	**0**
Discovery	25	2	0	3	30	5	5	0	**55**	7	**8**
Nodales	29	1	1	0	30	13	8	7	**59**	14	**16**
Shoal Bay	30	3	2	1	31	1	1	0	**61**	4	**4**
Fanny Bay	0	-	-	-	3	0	0	0	**3**	0	**0**
Bickley Bay	32	0	0	0	29	5	3	2	**61**	5	**5**
Cordero	0	-	-	-	24	6	9	0	**24**	6	**9**
Knox Bay	0	-	-	-	1	0	0	0	**1**	0	**0**
Bear Bay	29	0	0	0	1	1	1	0	**30**	1	**1**
Chancellor Channel	0	-	-	-	0	-	-	-	**0**	**-**	**-**
Race Passage	3	0	0	0	29	4	4	1	**32**	4	**5**
Wellbore Channel	0	-	-	-	0	-	-	-	**0**	**-**	**-**
Bessborough Bay	3	1	1	0	3	0	0	0	**6**	1	**1**
Sunderland	2	0	0	0	31	4	4	0	**33**	4	**4**
Blenkinsop Bay	0	-	-	-	0	-	-	-	**0**	**-**	**-**
Primary 3	29	4	2	2	2	2	2	0	**31**	6	**6**
Primary 1	30	0	0	0	0	-	-	-	**30**	0	**0**
TOTAL	**236**	**11**	**6**	**6**	**234**	**42**	**38**	**10**	**470**	**53**	**60**

3.9.3 Post-Exposure Infestation Rates by Sea Lice Species on Coho, Chinook and Sockeye Salmon

A total of 21 coho and 9 chinook salmon were collected from Post-Exposure sites in the Discovery Islands in 2019. No sea lice were found on any of these fish.

A total of 2 sockeye salmon were collected at the Raza site in May 2019. Both fish were infested with *Caligus clemensi.* One individual was infested with four lice and the other had five lice.

4.0 Conclusions

This report presents the data from the third year of industry driven beach seining and sea lice analysis conducted for wild juvenile salmonid monitoring in the Discovery Islands, BC by Marine Harvest Canada, Cermaq Canada and Grieg Seafood BC Ltd. This report is limited to the summary and presentation of data collected in 2019. A tabular comparison of water quality data as well as chum and pink sea lice infestation data from 2017 through 2019 is presented in Appendix IV.

4.1 Pre-Exposure Conclusions

A total of 185 individual samples from the Pre-Exposure beach seine sites underwent lab analysis for sea lice infestation including 126 chum, 40 pink, and 19 coho salmon. From the total Pre-Exposure sample population 50 individuals were infested with 111 sea lice. The calculated prevalence for the total Pre-Exposure sample population was 27.0% and the sea lice abundance was 0.60 for the Pre-Exposure sample population collected in the Discovery Islands in 2019.

A total of 126 chum salmon were captured, representing 56.0% of all captured Pre-Exposure samples. All of the captured chum were retained for lab analysis for sea lice infestation. A total of 35 chum smolts were found to be infested with 62 lice resulting in a calculated prevalence of 27.8% and an abundance of 0.49 for the Pre-Exposure chum salmon sample population.

A total of 80 pink salmon were captured, representing 35.6% of all captured Pre-Exposure samples. Of the 80 pinks captured, 40 were kept for lab analysis for sea lice infestation. A total of five pink salmon were found to be infested with nine lice resulting in a calculated prevalence of 12.5% and an abundance of 0.23 for the Pre-Exposure pink salmon sample population.

A total of 9 coho salmon were captured, representing 8.4% of fish captured at Pre-Exposure sites. All were retained for lab analysis. A total of 10 coho salmon were infested with 40 lice, resulting in a calculated prevalence of 52.6% and an abundance of 2.11 for the Pre-Exposure coho salmon sample population.

For the Pre-Exposure sample population (n=185), a total of 35 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 18 individuals and 76 *Caligus*

clemensi sea lice were found on 39 of the samples analyzed in the lab. Seven samples were infested with both *L. salmonis* and *C. clemensi*.

For the Pre-Exposure chum salmon sample population, a total of 11 *Lepeophtheirus salmonis* sea lice of various life stages were identified on nine juvenile chum salmon and 51 *Caligus clemensi* sea lice were found on 27 of the juvenile chum salmon. A single juvenile chum salmon was infested with both *L. salmonis* and *C. clemensi*.

For the Pre-Exposure pink salmon sample population, a total of nine *Caligus clemensi* sea lice were found on five of the juvenile pink salmon. No *Lepeophtheirus salmonis* sea lice were found on any of the Pre-Exposure juvenile pink salmon samples.

Among the Pre-Exposure coho salmon sample population, a total of 24 *Lepeophtheirus salmonis* sea lice of various life stages were identified on nine juvenile coho salmon and 16 *Caligus clemensi* sea lice were found on seven of the juvenile coho salmon. Six of the juvenile coho salmon were infested with both *L. salmonis* and *C. clemensi*.

A comparison of the prevalence, abundance and average intensity of sea lice species found on Pre-Exposure chum and pink salmon in 2019 is presented in the following summary table.

Fish Species	*Caligus clemensi*			*Lepeophtheirus salmonis*		
	Prevalence	Abundance	Average Intensity	Prevalence	Abundance	Average Intensity
Chum (n=126)	21.4%	0.40	1.9	7.1%	0.09	1.2
Pink (n=40)	12.5%	0.23	1.8	0%	0	-
Coho (n=19)	36.8%	0.84	2.3	47.4%	1.26	2.7

4.2 Post-Exposure Conclusions

A total of 1021 individual samples from the Post-Exposure beach seine sites underwent lab analysis for sea lice infestation including 519 chum, 470 pink, 21 coho, 9 chinook, and two sockeye salmon. Within the Post-Exposure sample population, 175 individuals were infested with 244 sea lice. The calculated prevalence for the total Post-Exposure sample population collected in the Discovery Islands in 2019 was 17.1%; the sea lice abundance was 0.24.

A total of 2063 Post-Exposure chum salmon were captured, representing 33.1% of all captured Post-Exposure samples. Of the 2063 chum captured, 519 were retained for lab analysis for sea lice infestation. A total of 120 chum smolts were found to be infested with 175 lice resulting in a calculated prevalence of 23.1% and an abundance of 0.34 for the Post-Exposure chum salmon sample population.

A total of 4144 pink salmon were captured, representing 66.4% of all captured Post-Exposure samples. Of the 4144 pinks captured, 470 were retained for lab analysis for sea lice infestation. A total of 53 pink salmon were found to be infested with 60 lice resulting in a calculated prevalence of 11.3% and an abundance of 0.13 for the Post-Exposure pink salmon sample population.

A total of 21 coho and nine chinook salmon were captured, retained and analyzed for sea lice infestation from the Post-Exposure sample sites. None of the coho or chinook salmon were found to be infested by lice.

A total of two Post-Exposure sockeye salmon were captured, retained and analyzed for sea lice infestation. Both specimens were found to be infested by a total of nine lice resulting in a calculated prevalence of 100% and an abundance of 4.50 for the Post-Exposure chinook salmon sample population.

For the Post-Exposure sample population, a total of 178 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 135 individuals and 66 *Caligus clemensi* sea lice were found on 50 of the samples analyzed in the lab. There were 10 samples that were infested with both *L. salmonis* and *C. clemensi*.

For the Post-Exposure chum salmon sample population, a total of 134 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 95 juvenile

chum salmon and 41 *Caligus clemensi* sea lice were found on 33 of the juvenile chum salmon. There were eight juvenile chum salmon infested with both *L. salmonis* and *C. clemensi*.

For the Post-Exposure pink salmon sample population, a total of 44 *Lepeophtheirus salmonis* sea lice of various life stages were identified on 40 juvenile pink salmon and 16 *Caligus clemensi* sea lice were found on 15 of the juvenile pink salmon. There were two juvenile pink salmon infested with both *L. salmonis* and *C. clemensi*.

For the Post-Exposure sockeye salmon population, a total of nine *Caligus clemensi* sea lice were found on the two juvenile sockeye salmon analyzed in the lab. No *Lepeophtheirus salmonis* sea lice were identified on sockeye salmon.

No sea lice were identified on Post-Exposure coho or chinook salmon samples.

A comparison of the prevalence, abundance and average intensity of sea lice species found on Post Exposure chum and pink salmon was completed for sample data from 2019 collected in the Discovery Islands. This data is presented in the following summary table.

Fish Species	*Caligus clemensi*			*Lepeophtheirus salmonis*		
	Prevalence	Abundance	Average Intensity	Prevalence	Abundance	Average Intensity
Chum (n=519)	6.4%	0.08	1.2	18.3%	0.26	1.4
Pink (n=470)	3.2%	0.03	1.1	8.5%	0.09	1.1

4.3 Comparison of Data between Pre- and Post-Exposure Sites

The following summary tables have been prepared to allow for direct comparison of the Pre- and Post-Exposure data of sea lice infestation rates on pink and chum salmon collected in the Discovery Islands in 2019. Table 29 presents the infestation rates for the species as a combination of both *L. salmonis* and *C. clemensi* while Table 30 presents the infestation rates separated by lice species.

Table 29: A comparison of sea lice infestation rates on the chum and pink salmon sample populations collected at Pre- and Post-Exposure sites in the Discovery Islands in 2019.

Species	Sample Location	Sample size (n)	Total number of lice observed	Total number of fish infested	Prevalence (%)	Abundance	Average Intensity
chum	Pre-Exposure	126	62	35	27.8	0.49	1.8
	Post-Exposure	519	175	120	23.1	0.34	1.5
pink	Pre-Exposure	40	9	5	12.5	0.23	1.5
	Post-Exposure	470	60	53	11.3	0.13	1.1

Table 30: A comparison of sea lice infestation rates by lice species on the chum and pink salmon sample populations collected at Pre- and Post-Exposure sites in the Discovery Islands in 2019.

Fish Species	Sample Location	*Caligus clemensi*			*Lepeophtheirus salmonis*		
		Prevalence (%)	Abundance	Average Intensity	Prevalence (%)	Abundance	Average Intensity
chum (n=126)	Pre-Exposure	21.4	0.40	1.9	7.1	0.09	1.2
chum (n=519)	Post-Exposure	6.4	0.08	1.2	18.3	0.26	1.4
pink (n=40)	Pre-Exposure	12.5	0.23	1.8	0	0	-
pink (n=470)	Post-Exposure	3.2	0.03	1.1	8.5	0.09	1.1

4.4 Comparison of Data Between Sample Years

A comparison of the prevalence, abundance and average intensity of sea lice species found on chum and pink salmon collected in the Discovery Islands between 2017 and 2019 is presented in the following summary table. Additional yearly comparisons are presented in Appendix IV.

Year	Sample Location and Species	*Caligus clemensi*			*Lepeophtheirus salmonis*		
		Prevalence	Abundance	Average Intensity	Prevalence	Abundance	Average Intensity
2017	Pre-Exposure chum (n=395)	8.4%	0.22	2.6	1.8%	0.02	1.1
	Post-Exposure chum (n=727)	3.9%	0.04	1.1	3.2%	0.03	1.0
2018	Pre-Exposure chum (n=123)	22.0%	0.27	1.2	2.4%	0.02	1.0
	Post-Exposure chum (n=599)	1.3%	0.01	1.0	2.8%	0.03	1.0
2019	Pre-Exposure chum (n=126)	21.4%	0.40	1.9	7.1%	0.09	1.2
	Post-Exposure chum (n=519)	6.4%	0.08	1.5	18.3%	0.26	1.4
2017	Pre-Exposure pink (n=173)	13.3%	0.31	2.3	1.2%	0.01	1.0
	Post-Exposure pink (n=277)	5.0%	0.05	1.1	4.0%	0.04	1.1
2018	Pre-Exposure pink (n=125)	19.2%	0.25	1.3	4.8%	0.06	1.2
	Post-Exposure pink (n=309)	1.9%	0.03	1.7	1.9%	0.02	1.0
2019	Pre-Exposure pink (n=40)	12.5%	0.23	1.8	0%	0	-
	Post-Exposure pink (n=470)	3.2%	0.03	1.1	8.5%	0.09	1.1

5.0 References

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Appendix I – Field Data

Date	Time	Site Name	Salinity (ppt)	Temperature (° C.)
			0.2m	0.2m
04/24/19	8:00	Francisco Point	31.5	9.7
04/24/19	8:50	Marina Island	31.2	9.6
04/24/19	9:30	Rebecca Spit	30.6	10.7
04/24/19	9:59	Viner Point	31.7	10.6
04/24/19	10:23	SE Hill Island	31.6	10.9
04/24/19	10:50	Penn Island	31.5	11.1
04/24/19	11:35	Raza	28.4	12.0
04/24/19	12:17	Raza North	27.2	12.6
04/25/19	9:10	Primary 1	26.1	9.2
04/25/19	9:45	Beautiful Bay	32.5	8.9
04/25/19	10:30	Primary 3	33.3	9.6
04/25/19	10:55	Blenkinsop Bay	33.3	11.5
04/25/19	11:30	Sunderland	34.2	11.5
04/25/19	12:05	Bessborough Bay	30.3	11.8
04/25/19	12:45	Wellbore Channel	16.0	11.0
04/25/19	13:15	Chancellor Channel	32.2	10.6
04/25/19	14:00	Race Passage	34.0	12.0
04/26/19	9:20	Rock Bay	31.0	9.4
04/26/19	10:15	Bear Bay	24.4	11.4
04/26/19	11:20	Knox Bay	15.0	12.5
04/26/19	-	Cordero	Not sampled	
04/26/19	12:25	Bickley Bay	27.5	14.0
04/26/19	-	Fanny Bay		
04/26/19	13:05	Shoal Bay	29.0	12.3
04/26/19	13:40	Nodales	32.6	12.7
04/26/19	14:20	Discovery	26.0	11.2
04/26/19	-	Owen Bay	Not sampled	
04/26/19	-	Okisollo	Not sampled	
04/26/19	15:28	Deepwater Bay	31.8	10.6
05/27/19	8:32	Primary 1	31.9	11.0
05/27/19	9:00	Beautiful Bay	31.6	12.3
05/27/19	9:24	Primary 3	31.7	12.0
05/27/19	9:50	Blenkinsop Bay	31.1	13.9
05/27/19	10:45	Sunderland	33.6	12.7
05/27/19	11:35	Bessborough Bay	35.4	15.5
05/27/19	11:54	Wellbore Channel	31.9	12.3
05/27/19	12:25	Chancellor Channel	31.1	15.2
05/27/19	13:20	Race Passage	31.9	13.2
05/28/19	7:18	Deepwater Bay	30.7	13.3
05/28/19	8:45	Owen Bay	30.4	15.4
05/28/19	9:00	Okisollo	32.0	12.3
05/28/19	9:32	Discovery	29.9	13.4
05/28/19	10:30	Nodales		17.1
05/28/19	11:00	Shoal Bay	28.8	15.7
05/28/19	11:50	Fanny Bay	29.2	15.7
05/28/19	12:19	Bickley Bay	29.4	14.8
05/28/19	13:15	Cordero	28.7	13.7
05/28/19	13:58	Knox Bay	26.5	17.4

Date	Time	Site Name	Salinity (ppt) 0.2m	Temperature (° C.) 0.2m
05/28/19	14:25	Bear Bay	24.0	13.5
05/28/19	15:13	Rock Bay	33.4	16.4
05/29/19	7:00	Francisco Point	27.8	18.2
05/29/19	7:30	Marina Island	24.8	22.2
05/29/19	8:15	Rebecca Spit	24.6	21.7
05/29/19	8:40	Viner Point	25.9	18.0
05/29/19	9:10	SE Hill Island	24.0	19.3
05/29/19	9:55	Penn Island	24.7	18.2
05/29/19	10:35	Raza	22.0	18.1
05/29/19	11:10	Raza North	17.2	20.1

Appendix II – Capture and Collection Sample Totals

Date	Site Name	Weather Comments	Pink Captured	Pink Retained	Chum Captured	Chum Retained	Coho Captured	Coho Retained	Chinook Captured	Chinook Retained	Sockeye Captured	Sockeye Retained	TSB Captured	TSB Retained	Comments
04/24/19	Francisco Point	Calm, clear.	1	1	8	8	0	0	0	0	0	0	0	0	0
04/24/19	Marina Island	Heavy chop interfering with net and boat.	8	8	24	24	0	0	0	0	0	0	0	0	0
04/24/19	Rebecca Spit	Moderate chop, clear.	0	0	14	14	0	0	0	0	0	0	0	0	0
04/24/19	Viner Point	Calm, clear.	0	0	0	0	0	0	0	0	0	0	0	0	0
04/24/19	SE Hill Island	Light breeze, clear.	2	2	5	5	0	0	0	0	0	0	0	0	0
04/24/19	Penn Island	Calm, clear.	0	0	0	0	0	0	0	0	0	0	0	0	0
04/24/19	Raza	Calm, clear.	0	0	6	6	0	0	0	0	0	0	0	0	0
04/24/19	Raza North	Calm, clear.	0	0	450	30	0	0	0	0	0	0	0	0	0
04/25/19	Primary 1	Moderate chop, high overcast.	74	30	6	6	0	0	0	0	0	0	0	0	2
04/25/19	Beautiful Bay	Calm, high overcast.	17	17	2	2	0	0	0	0	0	0	0	0	0
04/25/19	Primary 3	Calm, high overcast.	119	29	5	5	0	0	0	0	0	0	0	0	1
04/25/19	Blenkinsop Bay	Light wind, high overcast.	0	0	0	0	0	0	0	0	0	0	0	0	0
04/25/19	Sunderland	Light wind, high overcast.	2	2	0	0	0	0	0	0	0	0	0	0	0
04/25/19	Bessborough Bay	Light wind, clear.	3	3	2	2	10	10	0	0	0	0	0	0	0
04/25/19	Wellbore Channel	Calm, clear.	0	0	76	30	0	0	0	0	0	0	0	0	0
04/25/19	Chancellor Channel	Calm, clear.	0	0	0	0	0	0	0	0	0	0	0	0	0
04/25/19	Race Passage	Calm, clear.	3	3	0	0	6	6	0	0	0	0	0	0	0
04/26/19	Rock Bay	Calm, high overcast.	7	7	1	1	0	0	0	0	0	0	0	0	0
04/26/19	Bear Bay	Moderate wind, clear.	400	29	6	6	0	0	0	0	0	0	0	0	0
04/26/19	Knox Bay	Moderate wind, clear.	0	0	0	0	0	0	0	0	0	0	0	0	0
04/26/19	Cordero														
04/26/19	Bickley Bay	Light wind, clear.	2000	32	400	28	0	0	0	0	0	0	0	0	17
04/26/19	Fanny Bay														
04/26/19	Shoal Bay	Calm, clear.	170	30	32	30	1	1	8	8	0	0	0	0	3
04/26/19	Nodales	Calm, clear.	300	29	50	30	0	0	0	0	0	0	0	0	0
04/26/19	Discovery	Light wind, moderate chop, clear.	150	25	200	35	2	2	0	0	0	0	0	0	2
04/26/19	Owen Bay														
04/26/19	Okisollo														
04/26/19	Deepwater Bay	Light wind, moderate chop, clear.	69	29	29	29	0	0	0	0	0	0	0	0	0
05/27/19	Primary 1	Calm, clear.	0	0	2	2	0	0	0	0	0	0	0	0	0
05/27/19	Beautiful Bay	Calm, clear.	4	4	6	6	0	0	0	0	0	0	0	0	0
05/27/19	Primary 3	Calm, clear.	2	2	5	5	0	0	0	0	0	0	0	0	0
05/27/19	Blenkinsop Bay	Calm, clear.	0	0	180	30	0	0	0	0	0	0	0	0	0
05/27/19	Sunderland	Calm, clear.	51	31	7	7	0	0	0	0	0	0	0	0	0

Date	Site Name	Weather Comments	Pink Captured	Pink Retained	Chum Captured	Chum Retained	Coho Captured	Coho Retained	Chinook Captured	Chinook Retained	Sockeye Captured	Sockeye Retained	TSB Captured	TSB Retained	Comments
05/27/19	Bessborough Bay	Calm, clear.	3	3	2	2	0	0	0	0	0	0	0	0	0
05/27/19	Wellbore Channel	Calm, clear.	0	0	5	5	0	0	0	0	0	0	0	0	0
05/27/19	Chancellor Channel	Calm, clear.	0	0	0	0	0	0	0	0	0	0	0	0	0
05/27/19	Race Passage	Calm, clear.	130	29	10	10	0	0	0	0	0	0	0	0	0
05/28/19	Deepwater Bay	Light chop, clear.	0	0	0	0	5	5	0	0	0	0	0	0	0
05/28/19	Owen Bay	Calm, clear.	0	0	0	0	0	0	0	0	0	0	0	0	0
05/28/19	Okisollo	Calm, clear.	14	14	101	31	0	0	0	0	0	0	0	0	0
05/28/19	Discovery	Calm, clear.	120	30	120	31	0	0	0	0	0	0	0	0	0
05/28/19	Nodales	Calm, clear.	150	30	24	24	0	0	0	0	0	0	0	0	0
05/28/19	Shoal Bay	Calm, clear.	250	31	60	30	0	0	0	0	0	0	0	0	0
05/28/19	Fanny Bay	Calm, clear.	3	3	7	7	1	1	1	1	0	0	0	0	0
05/28/19	Bickley Bay	Calm, clear.	54	29	61	31	0	0	0	0	0	0	0	0	0
05/28/19	Cordero	Calm, clear.	114	24	186	36	0	0	0	0	0	0	0	0	2
05/28/19	Knox Bay	Moderate chop, clear.	1	1	3	3	0	0	0	0	0	0	0	0	0
05/28/19	Bear Bay	Moderate chop, clear.	1	1	0	0	1	1	0	0	0	0	0	0	0
05/28/19	Rock Bay	Calm, clear.	2	2	6	6	0	0	0	0	0	0	0	0	0
05/29/19	Francisco Point	Moderate swell, clear.	0	0	17	17	0	0	0	0	0	0	0	0	0
05/29/19	Marina Island	Calm, clear.	0	0	0	0	0	0	0	0	0	0	0	0	0
05/29/19	Rebecca Spit	Calm, clear.	0	0	9	9	12	12	0	0	0	0	0	0	0
05/29/19	Viner Point	Moderate wind, clear.	0	0	12	12	0	0	0	0	0	0	0	0	0
05/29/19	SE Hill Island	Calm, clear.	0	0	3	3	2	2	0	0	0	0	0	0	0
05/29/19	Penn Island	Calm, clear.	0	0	5	5	0	0	0	0	0	0	0	0	0
05/29/19	Raza	Calm, clear.	0	0	14	14	0	0	0	0	2	2	0	0	0
05/29/19	Raza North	Calm, clear.	0	0	28	28	0	0	0	0	0	0	0	0	0

Appendix III – Sea Lice Analysis Data

Date of seine	Location	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
23-Apr-19	Rebecca Spit	Chum	30	0.40								0										0
23-Apr-19	Rebecca Spit	Chum	37	0.55								0		2								2
23-Apr-19	Rebecca Spit	Chum	33	0.41								0										0
23-Apr-19	Rebecca Spit	Chum	35	0.65								0										0
23-Apr-19	Rebecca Spit	Chum	36	0.50								0										0
23-Apr-19	Rebecca Spit	Chum	36	0.47	1							1										0
23-Apr-19	Rebecca Spit	Chum	37	0.56								0		1								1
23-Apr-19	Rebecca Spit	Chum	35	0.36								0										0
23-Apr-19	Rebecca Spit	Chum	35	0.39								0										0
23-Apr-19	Rebecca Spit	Chum	34	0.32								0										0
23-Apr-19	Rebecca Spit	Chum	35	0.41								0		3								3
23-Apr-19	Rebecca Spit	Chum	34	0.35								0										0
23-Apr-19	Rebecca Spit	Chum	35	0.35								0										0
23-Apr-19	Rebecca Spit	Chum	35	0.34								0										0
24-Apr-19	Francisco Point	Chum	37	0.49								0										0
24-Apr-19	Francisco Point	Chum	38	0.54								0										0
24-Apr-19	Francisco Point	Chum	37	0.54								0			1							1
24-Apr-19	Francisco Point	Chum	32	0.41								0										0
24-Apr-19	Francisco Point	Chum	35	0.39								0										0
24-Apr-19	Francisco Point	Chum	35	0.42								0										0
24-Apr-19	Francisco Point	Chum	35	0.42								0										0
24-Apr-19	Francisco Point	Chum	36	0.60								0		1								1
24-Apr-19	Francisco Point	Pink	29	0.18								0										0
24-Apr-19	Marina Island	Pink	41	0.72								0		1		1						2
24-Apr-19	Marina Island	Pink	30	0.22								0										0
24-Apr-19	Marina Island	Pink	33	0.39								0										0
24-Apr-19	Marina Island	Pink	35	0.48								0										0
24-Apr-19	Marina Island	Pink	33	0.46								0		1		1						2
24-Apr-19	Marina Island	Pink	32	0.38								0		3								3
24-Apr-19	Marina Island	Chum	34	0.37								0										0
24-Apr-19	Marina Island	Chum	45	0.97								0										0
24-Apr-19	Marina Island	Chum	43	0.95								0		1								1
24-Apr-19	Marina Island	Chum	37	0.50								0										0
24-Apr-19	Marina Island	Chum	37	0.82								0										0
24-Apr-19	Marina Island	Chum	34	0.47								0										0
24-Apr-19	Marina Island	Chum	45	1.31								0										0
24-Apr-19	Marina Island	Chum	35	0.48								0		1								1
24-Apr-19	Marina Island	Chum	34	0.42								0										0
24-Apr-19	Marina Island	Chum	32	0.42								0										0
24-Apr-19	Marina Island	Chum	45	1.06								0		1								1

Date of seine	Location	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
24-Apr-19	Marina Island	Chum	35	0.43								0			2	1						3
24-Apr-19	Marina Island	Chum	40	0.68								0		1	1	1						3
24-Apr-19	Marina Island	Chum	47	1.25								0		2	1							3
24-Apr-19	Marina Island	Chum	37	0.63								0		2								2
24-Apr-19	Marina Island	Chum	38	0.63								0		1								1
24-Apr-19	Marina Island	Chum	39	0.66								0										0
24-Apr-19	Marina Island	Chum	38	0.73								0										0
24-Apr-19	Marina Island	Chum	35	0.45								0										0
24-Apr-19	Marina Island	Chum	45	1.09								0			4							4
24-Apr-19	Marina Island	Chum	36	0.69								0		1								1
24-Apr-19	Marina Island	Chum	38	0.61								0			1							1
24-Apr-19	Marina Island	Pink	44	0.89								0										0
24-Apr-19	Marina Island	Pink	39	0.86								0										0
24-Apr-19	Marina Island	Chum	37	0.75								0		1								1
24-Apr-19	Marina Island	Chum	35	0.46								0										0
24-Apr-19	Raza	Chum	30	0.38								0										0
24-Apr-19	Raza	Chum	30	0.30								0										0
24-Apr-19	Raza	Chum	33	0.34								0										0
24-Apr-19	Raza	Chum	37	0.44								0										0
24-Apr-19	Raza	Chum	32	0.38								0										0
24-Apr-19	Raza	Chum	34	0.44								0										0
24-Apr-19	Raza North	Chum	33	0.42								0										0
24-Apr-19	Raza North	Chum	50	1.91								0										0
24-Apr-19	Raza North	Chum	53	1.90								0										0
24-Apr-19	Raza North	Chum	69	4.01								0								1		1
24-Apr-19	Raza North	Chum	62	3.09			1					1										0
24-Apr-19	Raza North	Chum	52	1.50								0										0
24-Apr-19	Raza North	Chum	51	1.52								0										0
24-Apr-19	Raza North	Chum	43	0.91			1					1										0
24-Apr-19	Raza North	Chum	52	1.68								0										0
24-Apr-19	Raza North	Chum	61	2.67								0										0
24-Apr-19	Raza North	Chum	50	1.46		1						1						1				1
24-Apr-19	Raza North	Chum	41	0.84								0										0
24-Apr-19	Raza North	Chum	63	2.77				1	1			2										0
24-Apr-19	Raza North	Chum	57	1.98								0										0
24-Apr-19	Raza North	Chum	45	1.04								0										0
24-Apr-19	Raza North	Chum	58	2.42								0		1								1
24-Apr-19	Raza North	Chum	39	0.60								0										0
24-Apr-19	Raza North	Chum	52	1.68								0										0
24-Apr-19	Raza North	Chum	53	1.64								0										0
24-Apr-19	Raza North	Chum	52	1.76								0										0
24-Apr-19	Raza North	Chum	37	0.60								0	1	1								2

Date of seine	Location	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
24-Apr-19	Raza North	Chum	50	1.61		1						1										0
24-Apr-19	Raza North	Chum	48	1.61			1					1										0
24-Apr-19	Raza North	Chum	49	1.33								0										0
24-Apr-19	Raza North	Chum	50	1.34								0										0
24-Apr-19	Raza North	Chum	59	2.33								0			1							1
24-Apr-19	Raza North	Chum	46	1.25		1						1										0
24-Apr-19	Raza North	Chum	59	2.32								0										0
24-Apr-19	Raza North	Chum	42	0.90								0		1								1
24-Apr-19	Raza North	Chum	38	0.53	1							1										0
24-Apr-19	SE Hill Island	Chum	38	0.56								0										0
24-Apr-19	SE Hill Island	Chum	33	0.40								0										0
24-Apr-19	SE Hill Island	Chum	35	0.44								0										0
24-Apr-19	SE Hill Island	Chum	36	0.55								0										0
24-Apr-19	SE Hill Island	Chum	36	0.50								0										0
24-Apr-19	SE Hill Island	Pink	20	0.08								0										0
24-Apr-19	SE Hill Island	Pink	25	0.16								0										0
25-Apr-19	Beautiful Bay	Chum	35	0.35								0										0
25-Apr-19	Beautiful Bay	Chum	35	0.42								0										0
25-Apr-19	Beautiful Bay	Pink	36	0.37								0										0
25-Apr-19	Beautiful Bay	Pink	40	0.65								0										0
25-Apr-19	Beautiful Bay	Pink	34	0.31								0										0
25-Apr-19	Beautiful Bay	Pink	34	0.31								0										0
25-Apr-19	Beautiful Bay	Pink	32	0.24								0										0
25-Apr-19	Beautiful Bay	Pink	37	0.53								0										0
25-Apr-19	Beautiful Bay	Pink	34	0.32								0										0
25-Apr-19	Beautiful Bay	Pink	31	0.22								0										0
25-Apr-19	Beautiful Bay	Pink	32	0.24								0										0
25-Apr-19	Beautiful Bay	Pink	32	0.25								0										0
25-Apr-19	Beautiful Bay	Pink	32	0.24								0										0
25-Apr-19	Beautiful Bay	Pink	35	0.33								0										0
25-Apr-19	Beautiful Bay	Pink	30	0.21								0										0
25-Apr-19	Beautiful Bay	Pink	32	0.22								0										0
25-Apr-19	Beautiful Bay	Pink	39	0.48								0										0
25-Apr-19	Beautiful Bay	Pink	33	0.28								0										0
25-Apr-19	Beautiful Bay	Pink	33	0.28								0										0
25-Apr-19	Beautiful Bay	Pink	33	0.30								0										0
25-Apr-19	Bessborough Bay	Pink	32	0.31								0										0
25-Apr-19	Bessborough Bay	Pink	47	0.95								0										0
25-Apr-19	Bessborough Bay	Pink	38	0.57	1							1										0
25-Apr-19	Bessborough Bay	Chum	35	0.40								0										0
25-Apr-19	Bessborough Bay	Chum	41	1.04								0										0
25-Apr-19	Bessborough Bay	Coho	107	13.70								0										0
25-Apr-19	Bessborough Bay	Coho	93	9.64								0										0

Date of seine	Location	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
25-Apr-19	Bessborough Bay	Coho	90	10.90								0										0
25-Apr-19	Bessborough Bay	Coho	95	9.70								0										0
25-Apr-19	Bessborough Bay	Coho	87	9.62								0										0
25-Apr-19	Bessborough Bay	Coho	92	9.50								0										0
25-Apr-19	Bessborough Bay	Coho	98	13.35								0										0
25-Apr-19	Bessborough Bay	Coho	83	6.70								0										0
25-Apr-19	Bessborough Bay	Coho	89	9.13								0										0
25-Apr-19	Bessborough Bay	Coho	80	6.30								0										0
25-Apr-19	Primary 1	Chum	40	0.61								0										0
25-Apr-19	Primary 1	Chum	38	0.55								0										0
25-Apr-19	Primary 1	Chum	36	0.45								0										0
25-Apr-19	Primary 1	Chum	35	0.39								0										0
25-Apr-19	Primary 1	Chum	38	0.47								0										0
25-Apr-19	Primary 1	Chum	38	0.51								0										0
25-Apr-19	Primary 1	Pink	32	0.34								0										0
25-Apr-19	Primary 1	Pink	30	0.24								0										0
25-Apr-19	Primary 1	Pink	31	0.23								0										0
25-Apr-19	Primary 1	Pink	32	0.24								0										0
25-Apr-19	Primary 1	Pink	34	0.38								0										0
25-Apr-19	Primary 1	Pink	34	0.39								0										0
25-Apr-19	Primary 1	Pink	31	0.30								0										0
25-Apr-19	Primary 1	Pink	31	0.30								0										0
25-Apr-19	Primary 1	Pink	33	0.27								0										0
25-Apr-19	Primary 1	Pink	34	0.33								0										0
25-Apr-19	Primary 1	Pink	33	0.34								0										0
25-Apr-19	Primary 1	Pink	31	0.20								0										0
25-Apr-19	Primary 1	Pink	37	0.42								0										0
25-Apr-19	Primary 1	Pink	32	0.38								0										0
25-Apr-19	Primary 1	Pink	33	0.38								0										0
25-Apr-19	Primary 1	Pink	36	0.41								0										0
25-Apr-19	Primary 1	Pink	31	0.29								0										0
25-Apr-19	Primary 1	Pink	32	0.33								0										0
25-Apr-19	Primary 1	Pink	32	0.26								0										0
25-Apr-19	Primary 1	Pink	32	0.27								0										0
25-Apr-19	Primary 1	Pink	32	0.29								0										0
25-Apr-19	Primary 1	Pink	31	0.25								0										0
25-Apr-19	Primary 1	Pink	34	0.42								0										0
25-Apr-19	Primary 1	Pink	33	0.32								0										0
25-Apr-19	Primary 1	Pink	32	0.30								0										0
25-Apr-19	Primary 1	Pink	35	0.36								0										0
25-Apr-19	Primary 1	Pink	35	0.42								0										0
25-Apr-19	Primary 1	Pink	32	0.32								0										0
25-Apr-19	Primary 1	Pink	32	0.25								0										0

Date of seine	Location	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
25-Apr-19	Primary 1	Pink	29	0.21								0										0
25-Apr-19	Primary 1	Pink	32	0.24								0										0
25-Apr-19	Primary 3	Chum	36	0.35								0										0
25-Apr-19	Primary 3	Chum	40	0.58								0										0
25-Apr-19	Primary 3	Chum	37	0.57								0										0
25-Apr-19	Primary 3	Chum	32	0.35								0										0
25-Apr-19	Primary 3	Chum	33	0.28								0										0
25-Apr-19	Primary 3	Pink	31	0.21								0										0
25-Apr-19	Primary 3	Pink	33	0.30			1					1										0
25-Apr-19	Primary 3	Pink	34	0.39								0										0
25-Apr-19	Primary 3	Pink	31	0.30								0		1								1
25-Apr-19	Primary 3	Pink	32	0.37								0										0
25-Apr-19	Primary 3	Pink	31	0.23								0										0
25-Apr-19	Primary 3	Pink	30	0.24								0								1		1
25-Apr-19	Primary 3	Pink	37	0.50		1						1										0
25-Apr-19	Primary 3	Pink	33	0.25								0										0
25-Apr-19	Primary 3	Pink	33	0.29								0										0
25-Apr-19	Primary 3	Pink	30	0.23								0										0
25-Apr-19	Primary 3	Pink	31	0.28								0										0
25-Apr-19	Primary 3	Pink	34	0.30								0										0
25-Apr-19	Primary 3	Pink	30	0.25								0										0
25-Apr-19	Primary 3	Pink	34	0.30								0										0
25-Apr-19	Primary 3	Pink	30	0.25								0										0
25-Apr-19	Primary 3	Pink	35	0.47								0										0
25-Apr-19	Primary 3	Pink	29	0.18								0										0
25-Apr-19	Primary 3	Pink	33	0.24								0										0
25-Apr-19	Primary 3	Pink	33	0.29								0										0
25-Apr-19	Primary 3	Pink	31	0.27								0										0
25-Apr-19	Primary 3	Pink	31	0.20								0										0
25-Apr-19	Primary 3	Pink	34	0.36								0										0
25-Apr-19	Primary 3	Pink	31	0.26								0										0
25-Apr-19	Primary 3	Pink	31	0.24								0										0
25-Apr-19	Primary 3	Pink	30	0.22								0										0
25-Apr-19	Primary 3	Pink	32	0.28								0										0
25-Apr-19	Primary 3	Pink	31	0.25								0										0
25-Apr-19	Primary 3	Pink	30	0.20								0										0
25-Apr-19	Primary 3	Pink	31	0.26								0										0
25-Apr-19	Primary 3	Pink	31	0.22								0										0
25-Apr-19	Race Passage	Coho	85	7.57								0										0
25-Apr-19	Race Passage	Coho	85	7.09								0										0
25-Apr-19	Race Passage	Coho	100	15.89								0										0
25-Apr-19	Race Passage	Coho	92	10.25								0										0
25-Apr-19	Race Passage	Coho	92	9.71								0										0
25-Apr-19	Race Passage	Coho	95	11.07								0										0

Date of seine	Location	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
25-Apr-19	Race Passage	Pink	32	0.28								0										0
25-Apr-19	Race Passage	Pink	30	0.28								0										0
25-Apr-19	Race Passage	Pink	31	0.24								0										0
25-Apr-19	Sunderland	Pink	30	0.22								0										0
25-Apr-19	Sunderland	Pink	35	0.38								0										0
25-Apr-19	Wellbore Channel	Chum	35	0.45								0										0
25-Apr-19	Wellbore Channel	Chum	37	0.61								0										0
25-Apr-19	Wellbore Channel	Chum	43	0.98								0										0
25-Apr-19	Wellbore Channel	Chum	32	0.32								0										0
25-Apr-19	Wellbore Channel	Chum	36	0.51								0										0
25-Apr-19	Wellbore Channel	Chum	36	0.45								0										0
25-Apr-19	Wellbore Channel	Chum	46	1.06								0										0
25-Apr-19	Wellbore Channel	Chum	36	0.53								0	1									1
25-Apr-19	Wellbore Channel	Chum	40	0.63								0										0
25-Apr-19	Wellbore Channel	Chum	38	0.61								0										0
25-Apr-19	Wellbore Channel	Chum	34	0.40								0										0
25-Apr-19	Wellbore Channel	Chum	37	0.59								0										0
25-Apr-19	Wellbore Channel	Chum	37	0.65								0										0
25-Apr-19	Wellbore Channel	Chum	35	0.40								0										0
25-Apr-19	Wellbore Channel	Chum	36	0.44								0										0
25-Apr-19	Wellbore Channel	Chum	34	0.38								0										0
25-Apr-19	Wellbore Channel	Chum	36	0.44								0										0
25-Apr-19	Wellbore Channel	Chum	34	0.38								0										0
25-Apr-19	Wellbore Channel	Chum	36	0.47								0										0
25-Apr-19	Wellbore Channel	Chum	37	0.59								0										0
25-Apr-19	Wellbore Channel	Chum	36	0.44								0										0
25-Apr-19	Wellbore Channel	Chum	37	0.60								0										0
25-Apr-19	Wellbore Channel	Chum	35	0.40								0										0
25-Apr-19	Wellbore Channel	Chum	34	0.36								0										0
25-Apr-19	Wellbore Channel	Chum	34	0.39								0										0
25-Apr-19	Wellbore Channel	Chum	35	0.49								0										0
25-Apr-19	Wellbore Channel	Chum	37	0.52								0										0
25-Apr-19	Wellbore Channel	Chum	37	0.56								0										0
25-Apr-19	Wellbore Channel	Chum	36	0.49								0										0
25-Apr-19	Wellbore Channel	Chum	36	0.48								0										0
25-Apr-19	Wellbore Channel	Chum	34	0.42								0										0
25-Apr-19	Wellbore Channel	Chum	39	0.61								0										0
26-Apr-19	Bear Bay	Chum	36	0.46								0										0
26-Apr-19	Bear Bay	Chum	34	0.40								0										0
26-Apr-19	Bear Bay	Chum	34	0.37								0										0
26-Apr-19	Bear Bay	Chum	35	0.37								0										0
26-Apr-19	Bear Bay	Chum	30	0.24								0										0
26-Apr-19	Bear Bay	Pink	30	0.21								0										0
26-Apr-19	Bear Bay	Chum	33	0.28								0										0

Date of seine	Location	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
26-Apr-19	Bear Bay	Pink	31	0.21								0										0
26-Apr-19	Bear Bay	Pink	33	0.29								0										0
26-Apr-19	Bear Bay	Pink	31	0.22								0										0
26-Apr-19	Bear Bay	Pink	33	0.30								0										0
26-Apr-19	Bear Bay	Pink	34	0.32								0										0
26-Apr-19	Bear Bay	Pink	31	0.25								0										0
26-Apr-19	Bear Bay	Pink	30	0.20								0										0
26-Apr-19	Bear Bay	Pink	31	0.23								0										0
26-Apr-19	Bear Bay	Pink	34	0.28								0										0
26-Apr-19	Bear Bay	Pink	36	0.36								0										0
26-Apr-19	Bear Bay	Pink	32	0.20								0										0
26-Apr-19	Bear Bay	Pink	34	0.33								0										0
26-Apr-19	Bear Bay	Pink	32	0.26								0										0
26-Apr-19	Bear Bay	Pink	32	0.24								0										0
26-Apr-19	Bear Bay	Pink	32	0.26								0										0
26-Apr-19	Bear Bay	Pink	33	0.33								0										0
26-Apr-19	Bear Bay	Pink	34	0.33								0										0
26-Apr-19	Bear Bay	Pink	32	0.23								0										0
26-Apr-19	Bear Bay	Pink	33	0.25								0										0
26-Apr-19	Bear Bay	Pink	33	0.29								0										0
26-Apr-19	Bear Bay	Pink	30	0.21								0										0
26-Apr-19	Bear Bay	Pink	33	0.29								0										0
26-Apr-19	Bear Bay	Pink	30	0.21								0										0
26-Apr-19	Bear Bay	Pink	32	0.25								0										0
26-Apr-19	Bear Bay	Pink	32	0.25								0										0
26-Apr-19	Bear Bay	Pink	34	0.32								0										0
26-Apr-19	Bear Bay	Pink	33	0.25								0										0
26-Apr-19	Bear Bay	Pink	32	0.22								0										0
26-Apr-19	Bear Bay	Pink	32	0.23								0										0
26-Apr-19	Bear Bay	Pink	33	0.30								0										0
26-Apr-19	Bickley Bay	Chum	41	0.90								0										0
26-Apr-19	Bickley Bay	Chum	36	0.44								0										0
26-Apr-19	Bickley Bay	Chum	41	0.79								0										0
26-Apr-19	Bickley Bay	Chum	36	0.49								0										0
26-Apr-19	Bickley Bay	Chum	35	0.51								0										0
26-Apr-19	Bickley Bay	Chum	37	0.59								0										0
26-Apr-19	Bickley Bay	Chum	43	0.87								0										0
26-Apr-19	Bickley Bay	Chum	40	0.81								0										0
26-Apr-19	Bickley Bay	Chum	38	0.36								0										0
26-Apr-19	Bickley Bay	Chum	39	0.77								0										0
26-Apr-19	Bickley Bay	Chum	54	2.17								0										0
26-Apr-19	Bickley Bay	Chum	35	0.40								0										0
26-Apr-19	Bickley Bay	Chum	34	0.53								0										0
26-Apr-19	Bickley Bay	Chum	48	1.30								0										0

Date of seine	Location	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
26-Apr-19	Bickley Bay	Chum	44	1.10			1					1										0
26-Apr-19	Bickley Bay	Chum	46	0.96								0										0
26-Apr-19	Bickley Bay	Chum	40	0.64								0										0
26-Apr-19	Bickley Bay	Chum	39	0.71								0										0
26-Apr-19	Bickley Bay	Chum	36	0.53								0										0
26-Apr-19	Bickley Bay	Chum	38	0.54								0										0
26-Apr-19	Bickley Bay	Chum	37	0.53								0										0
26-Apr-19	Bickley Bay	Chum	36	0.52								0										0
26-Apr-19	Bickley Bay	Chum	38	0.58	1							1										0
26-Apr-19	Bickley Bay	Chum	57	1.23								0					1					1
26-Apr-19	Bickley Bay	Chum	38	0.82								0										0
26-Apr-19	Bickley Bay	Chum	38	0.72								0										0
26-Apr-19	Bickley Bay	Chum	43	0.89								0										0
26-Apr-19	Bickley Bay	Chum	42	0.77			1					1										0
26-Apr-19	Bickley Bay	Pink	35	0.51								0										0
26-Apr-19	Bickley Bay	Pink	34	0.37								0										0
26-Apr-19	Bickley Bay	Pink	34	0.42								0										0
26-Apr-19	Bickley Bay	Pink	34	0.50								0										0
26-Apr-19	Bickley Bay	Pink	35	0.45								0										0
26-Apr-19	Bickley Bay	Pink	31	0.34								0										0
26-Apr-19	Bickley Bay	Pink	33	0.35								0										0
26-Apr-19	Bickley Bay	Pink	31	0.29								0										0
26-Apr-19	Bickley Bay	Pink	30	0.23								0										0
26-Apr-19	Bickley Bay	Pink	32	0.24								0										0
26-Apr-19	Bickley Bay	Pink	30	0.26								0										0
26-Apr-19	Bickley Bay	Pink	31	0.29								0										0
26-Apr-19	Bickley Bay	Pink	34	0.46								0										0
26-Apr-19	Bickley Bay	Pink	29	0.36								0										0
26-Apr-19	Bickley Bay	Pink	35	0.50								0										0
26-Apr-19	Bickley Bay	Pink	33	0.40								0										0
26-Apr-19	Bickley Bay	Pink	35	0.49								0										0
26-Apr-19	Bickley Bay	Pink	30	0.26								0										0
26-Apr-19	Bickley Bay	Pink	31	0.29								0										0
26-Apr-19	Bickley Bay	Pink	33	0.38								0										0
26-Apr-19	Bickley Bay	Pink	34	0.43								0										0
26-Apr-19	Bickley Bay	Pink	31	0.28								0										0
26-Apr-19	Bickley Bay	Pink	30	0.24								0										0
26-Apr-19	Bickley Bay	Pink	33	0.35								0										0
26-Apr-19	Bickley Bay	Pink	33	0.33								0										0
26-Apr-19	Bickley Bay	Pink	31	0.33								0										0
26-Apr-19	Bickley Bay	Pink	29	0.22								0										0
26-Apr-19	Bickley Bay	Pink	35	0.41								0										0

Date of seine	Location	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
26-Apr-19	Bickley Bay	Pink	44	0.40								0										0
26-Apr-19	Bickley Bay	Pink	33	0.42								0										0
26-Apr-19	Bickley Bay	Pink	31	0.29								0										0
26-Apr-19	Bickley Bay	Pink	45	0.99								0										0
26-Apr-19	Deepwater Bay	Chum	39	0.48								0										0
26-Apr-19	Deepwater Bay	Chum	42	0.66								0										0
26-Apr-19	Deepwater Bay	Chum	37	0.49								0										0
26-Apr-19	Deepwater Bay	Chum	39	0.63								0										0
26-Apr-19	Deepwater Bay	Chum	36	0.49								0										0
26-Apr-19	Deepwater Bay	Chum	41	0.68								0										0
26-Apr-19	Deepwater Bay	Chum	38	0.61								0										0
26-Apr-19	Deepwater Bay	Chum	40	0.58								0										0
26-Apr-19	Deepwater Bay	Chum	41	0.71								0										0
26-Apr-19	Deepwater Bay	Chum	39	0.58		1						1										0
26-Apr-19	Deepwater Bay	Chum	37	0.79								0										0
26-Apr-19	Deepwater Bay	Chum	35	0.46								0										0
26-Apr-19	Deepwater Bay	Chum	35	0.39								0										0
26-Apr-19	Deepwater Bay	Chum	42	0.90								0										0
26-Apr-19	Deepwater Bay	Chum	42	0.93								0										0
26-Apr-19	Deepwater Bay	Chum	40	0.73								0										0
26-Apr-19	Deepwater Bay	Chum	41	0.78								0										0
26-Apr-19	Deepwater Bay	Chum	41	0.78								0										0
26-Apr-19	Deepwater Bay	Chum	39	0.59								0										0
26-Apr-19	Deepwater Bay	Chum	41	0.65								0										0
26-Apr-19	Deepwater Bay	Chum	39	0.61								0										0
26-Apr-19	Deepwater Bay	Chum	37	0.51								0										0
26-Apr-19	Deepwater Bay	Chum	41	0.74								0										0
26-Apr-19	Deepwater Bay	Chum	41	0.74								0										0
26-Apr-19	Deepwater Bay	Chum	36	0.61								0										0
26-Apr-19	Deepwater Bay	Chum	44	0.81								0										0
26-Apr-19	Deepwater Bay	Chum	39	0.58								0										0
26-Apr-19	Deepwater Bay	Chum	43	0.71								0										0
26-Apr-19	Deepwater Bay	Chum	38	0.81								0			1							1
26-Apr-19	Deepwater Bay	Pink	37	0.50								0										0
26-Apr-19	Deepwater Bay	Pink	35	0.33								0										0
26-Apr-19	Deepwater Bay	Pink	36	0.61								0										0
26-Apr-19	Deepwater Bay	Pink	38	0.73								0		1								1
26-Apr-19	Deepwater Bay	Pink	37	0.79								0										0
26-Apr-19	Deepwater Bay	Pink	40	0.64								0										0
26-Apr-19	Deepwater Bay	Pink	39	0.52								0										0
26-Apr-19	Deepwater Bay	Chum	35	0.42								0										0
26-Apr-19	Deepwater Bay	Pink	37	0.51								0										0
26-Apr-19	Deepwater Bay	Pink	32	0.31								0										0

Date of seine	Location	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
26-Apr-19	Deepwater Bay	Pink	36	0.66								0										0
26-Apr-19	Deepwater Bay	Pink	35	0.66								0										0
26-Apr-19	Deepwater Bay	Pink	37	0.74								0										0
26-Apr-19	Deepwater Bay	Pink	39	0.69								0										0
26-Apr-19	Deepwater Bay	Pink	33	0.50								0										0
26-Apr-19	Deepwater Bay	Pink	40	0.65								0										0
26-Apr-19	Deepwater Bay	Pink	39	0.68								0										0
26-Apr-19	Deepwater Bay	Pink	45	1.19								0										0
26-Apr-19	Deepwater Bay	Pink	42	0.85								0										0
26-Apr-19	Deepwater Bay	Pink	33	0.54								0										0
26-Apr-19	Deepwater Bay	Pink	39	0.65								0										0
26-Apr-19	Deepwater Bay	Pink	41	0.90								0			1							1
26-Apr-19	Deepwater Bay	Pink	36	0.69								0										0
26-Apr-19	Deepwater Bay	Pink	34	0.48								0										0
26-Apr-19	Deepwater Bay	Pink	36	0.56								0										0
26-Apr-19	Deepwater Bay	Pink	37	0.49								0										0
26-Apr-19	Deepwater Bay	Pink	45	1.04								0										0
26-Apr-19	Deepwater Bay	Pink	43	0.94								0										0
26-Apr-19	Deepwater Bay	Pink	39	0.59								0										0
26-Apr-19	Deepwater Bay	Pink	36	0.57								0										0
26-Apr-19	Discovery	Pink	35	0.43								0										0
26-Apr-19	Discovery	Pink	35	0.43								0										0
26-Apr-19	Discovery	Pink	34	0.35								0										0
26-Apr-19	Discovery	Pink	33	0.35								0										0
26-Apr-19	Discovery	Chum	39	0.67								0										0
26-Apr-19	Discovery	Pink	31	0.31								0										0
26-Apr-19	Discovery	Pink	33	0.29								0										0
26-Apr-19	Discovery	Pink	32	0.24								0										0
26-Apr-19	Discovery	Pink	48	0.97								0										0
26-Apr-19	Discovery	Pink	43	0.73								0										0
26-Apr-19	Discovery	Pink	33	0.26								0										0
26-Apr-19	Discovery	Pink	33	0.30								0										0
26-Apr-19	Discovery	Pink	37	0.40								0										0
26-Apr-19	Discovery	Pink	35	0.38								0										0
26-Apr-19	Discovery	Pink	32	0.40								0										0
26-Apr-19	Discovery	Pink	47	1.00								0			2							2
26-Apr-19	Discovery	Pink	31	0.23								0										0
26-Apr-19	Discovery	Pink	33	0.37								0										0
26-Apr-19	Discovery	Pink	30	0.22								0										0
26-Apr-19	Discovery	Pink	35	0.35								0										0
26-Apr-19	Discovery	Pink	43	0.73								0										0
26-Apr-19	Discovery	Pink	41	0.63								0										0
26-Apr-19	Discovery	Pink	42	0.71								0		1								1

Date of seine	Location	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
26-Apr-19	Discovery	Pink	35	0.46								0										0
26-Apr-19	Discovery	Pink	40	0.59								0										0
26-Apr-19	Discovery	Pink	33	0.32								0										0
26-Apr-19	Discovery	Pink	47	0.93								0										0
26-Apr-19	Discovery	Chum	55	1.95								0										0
26-Apr-19	Discovery	Chum	48	1.27								0										0
26-Apr-19	Discovery	Chum	42	0.77								0										0
26-Apr-19	Discovery	Chum	45	1.06								0										0
26-Apr-19	Discovery	Chum	38	0.51								0										0
26-Apr-19	Discovery	Chum	51	1.43								0										0
26-Apr-19	Discovery	Chum	39	0.63								0										0
26-Apr-19	Discovery	Chum	40	0.67								0										0
26-Apr-19	Discovery	Chum	37	0.58								0										0
26-Apr-19	Discovery	Chum	49	1.35								0										0
26-Apr-19	Discovery	Chum	50	1.13								0										0
26-Apr-19	Discovery	Chum	51	1.34								0										0
26-Apr-19	Discovery	Chum	55	1.63								0										0
26-Apr-19	Discovery	Chum	48	1.14			1					1										0
26-Apr-19	Discovery	Chum	42	0.81								0										0
26-Apr-19	Discovery	Chum	52	1.33								0										0
26-Apr-19	Discovery	Chum	43	0.90								0										0
26-Apr-19	Discovery	Chum	51	1.44		1						1				1						1
26-Apr-19	Discovery	Chum	43	0.84								0										0
26-Apr-19	Discovery	Chum	41	0.67								0										0
26-Apr-19	Discovery	Chum	49	1.25								0										0
26-Apr-19	Discovery	Chum	52	1.60								0										0
26-Apr-19	Discovery	Chum	42	0.77								0										0
26-Apr-19	Discovery	Chum	46	1.00								0										0
26-Apr-19	Discovery	Chum	46	1.00								0										0
26-Apr-19	Discovery	Chum	42	0.75								0										0
26-Apr-19	Discovery	Chum	37	0.43								0										0
26-Apr-19	Discovery	Chum	42	0.75								0			1							1
26-Apr-19	Discovery	Chum	38	0.60								0										0
26-Apr-19	Discovery	Chum	39	0.61		1						1										0
26-Apr-19	Discovery	Chum	56	2.06								0										0
26-Apr-19	Discovery	Chum	38	0.59								0										0
26-Apr-19	Discovery	Chum	52	1.69								0										0
26-Apr-19	Discovery	Chum	50	1.41								0										0
26-Apr-19	Discovery	Coho	101	12.77								0										0
26-Apr-19	Discovery	Coho	97	11.98								0										0
26-Apr-19	Nodales	Pink	29	0.27								0										0
26-Apr-19	Nodales	Pink	34	0.40								0										0

Date of seine	Location	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
26-Apr-19	Nodales	Pink	34	0.42								0										0
26-Apr-19	Nodales	Pink	33	0.47								0										0
26-Apr-19	Nodales	Pink	34	0.51								0										0
26-Apr-19	Nodales	Pink	32	0.40								0										0
26-Apr-19	Nodales	Pink	29	0.31								0										0
26-Apr-19	Nodales	Pink	38	0.79								0										0
26-Apr-19	Nodales	Pink	35	0.35								0										0
26-Apr-19	Nodales	Pink	33	0.45								0										0
26-Apr-19	Nodales	Pink	32	0.31								0										0
26-Apr-19	Nodales	Pink	40	0.74								0										0
26-Apr-19	Nodales	Pink	31	0.35								0										0
26-Apr-19	Nodales	Pink	32	0.55								0										0
26-Apr-19	Nodales	Pink	36	0.58								0										0
26-Apr-19	Nodales	Pink	34	0.50								0										0
26-Apr-19	Nodales	Pink	33	0.44	1							1										0
26-Apr-19	Nodales	Pink	34	0.36								0										0
26-Apr-19	Nodales	Pink	34	0.58								0										0
26-Apr-19	Nodales	Pink	34	0.42								0										0
26-Apr-19	Nodales	Pink	34	0.35								0										0
26-Apr-19	Nodales	Pink	33	0.40								0										0
26-Apr-19	Nodales	Pink	34	0.43								0										0
26-Apr-19	Nodales	Pink	33	0.40								0										0
26-Apr-19	Nodales	Pink	34	0.43								0										0
26-Apr-19	Nodales	Pink	33	0.41								0										0
26-Apr-19	Nodales	Pink	35	0.44								0										0
26-Apr-19	Nodales	Pink	32	0.39								0										0
26-Apr-19	Nodales	Pink	49	1.38								0										0
26-Apr-19	Nodales	Pink	33	0.43								0										0
26-Apr-19	Nodales	Pink	31	0.38								0										0
26-Apr-19	Nodales	Chum	65	3.46								0										0
26-Apr-19	Nodales	Chum	65	3.19								0										0
26-Apr-19	Nodales	Chum	62	2.83								0		1								1
26-Apr-19	Nodales	Chum	62	2.35		1	1					2										0
26-Apr-19	Nodales	Chum	35	0.48	1							1										0
26-Apr-19	Nodales	Chum	52	1.84								0										0
26-Apr-19	Nodales	Chum	47	1.21								0										0
26-Apr-19	Nodales	Chum	45	0.88			1					1										0
26-Apr-19	Nodales	Chum	60	2.71								0										0
26-Apr-19	Nodales	Chum	52	1.71								0										0
26-Apr-19	Nodales	Chum	51	1.49								0										0
26-Apr-19	Nodales	Chum	46	1.34	1							1										0
26-Apr-19	Nodales	Chum	61	2.96								0										0
26-Apr-19	Nodales	Chum	54	1.91	1		1					2										0
26-Apr-19	Nodales	Chum	32	0.59								0										0

Date of seine	Location	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
26-Apr-19	Nodales	Chum	47	1.51			1					1										0
26-Apr-19	Nodales	Chum	36	0.52								0										0
26-Apr-19	Nodales	Chum	47	1.09		1	2					3										0
26-Apr-19	Nodales	Chum	55	1.94								0										0
26-Apr-19	Nodales	Chum	50	1.74			1					1		2								2
26-Apr-19	Nodales	Chum	55	2.22	1							1										0
26-Apr-19	Nodales	Chum	52	1.91			1					1		1								1
26-Apr-19	Nodales	Chum	37	0.60								0										0
26-Apr-19	Nodales	Chum	50	1.61			1					1										0
26-Apr-19	Nodales	Chum	49	1.31	1							1										0
26-Apr-19	Nodales	Chum	38	0.64								0										0
26-Apr-19	Nodales	Chum	55	1.79								0										0
26-Apr-19	Nodales	Chum	49	1.57								0										0
26-Apr-19	Nodales	Chum	54	2.04			1					1		1		1						2
26-Apr-19	Nodales	Chum	53	1.99								0			2	1						3
26-Apr-19	Rock Bay	Chum	31	0.55								0										0
26-Apr-19	Rock Bay	Pink	40	0.68								0										0
26-Apr-19	Rock Bay	Pink	32	0.26								0										0
26-Apr-19	Rock Bay	Pink	33	0.38								0										0
26-Apr-19	Rock Bay	Pink	30	0.25								0										0
26-Apr-19	Rock Bay	Pink	32	0.27								0										0
26-Apr-19	Rock Bay	Pink	32	0.27								0										0
26-Apr-19	Rock Bay	Pink	28	0.15								0										0
26-Apr-19	Shoal Bay	Pink	38	0.51								0										0
26-Apr-19	Shoal Bay	Pink	32	0.22								0										0
26-Apr-19	Shoal Bay	Pink	37	0.44								0										0
26-Apr-19	Shoal Bay	Pink	35	0.35								0										0
26-Apr-19	Shoal Bay	Pink	44	0.74								0										0
26-Apr-19	Shoal Bay	Pink	36	0.42								0										0
26-Apr-19	Shoal Bay	Pink	39	0.54								0										0
26-Apr-19	Shoal Bay	Pink	33	0.36								0										0
26-Apr-19	Shoal Bay	Pink	33	0.26								0										0
26-Apr-19	Shoal Bay	Pink	34	0.30								0										0
26-Apr-19	Shoal Bay	Pink	31	0.23								0										0
26-Apr-19	Shoal Bay	Pink	35	0.37								0		1								1
26-Apr-19	Shoal Bay	Pink	38	0.53								0										0
26-Apr-19	Shoal Bay	Pink	34	0.30								0										0
26-Apr-19	Shoal Bay	Pink	47	1.06								0										0
26-Apr-19	Shoal Bay	Pink	36	0.38	1							1										0
26-Apr-19	Shoal Bay	Pink	34	0.40								0										0
26-Apr-19	Shoal Bay	Pink	33	0.41								0										0
26-Apr-19	Shoal Bay	Pink	41	0.68								0										0

Date of seine	Location	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
26-Apr-19	Shoal Bay	Pink	34	0.33								0										0
26-Apr-19	Shoal Bay	Pink	34	0.34								0										0
26-Apr-19	Shoal Bay	Pink	37	0.44								0										0
26-Apr-19	Shoal Bay	Pink	37	0.43								0										0
26-Apr-19	Shoal Bay	Pink	33	0.28								0										0
26-Apr-19	Shoal Bay	Pink	46	0.90								0										0
26-Apr-19	Shoal Bay	Pink	34	0.35								0										0
26-Apr-19	Shoal Bay	Pink	40	0.60								0										0
26-Apr-19	Shoal Bay	Pink	36	0.42								0										0
26-Apr-19	Shoal Bay	Pink	39	0.58			1					1										0
26-Apr-19	Shoal Bay	Pink	38	0.48								0										0
26-Apr-19	Shoal Bay	Chinook	37	0.54								0										0
26-Apr-19	Shoal Bay	Chinook	38	0.60								0										0
26-Apr-19	Shoal Bay	Chinook	39	0.53								0										0
26-Apr-19	Shoal Bay	Chinook	42	0.81								0										0
26-Apr-19	Shoal Bay	Chinook	40	0.65								0										0
26-Apr-19	Shoal Bay	Chinook	41	0.69								0										0
26-Apr-19	Shoal Bay	Chinook	39	0.54								0										0
26-Apr-19	Shoal Bay	Coho	32	0.34								0										0
26-Apr-19	Shoal Bay	Chum	36	0.40								0										0
26-Apr-19	Shoal Bay	Chum	37	0.32								0										0
26-Apr-19	Shoal Bay	Chum	36	0.33								0										0
26-Apr-19	Shoal Bay	Chum	38	0.45								0										0
26-Apr-19	Shoal Bay	Chum	40	0.60								0										0
26-Apr-19	Shoal Bay	Chum	41	0.64								0										0
26-Apr-19	Shoal Bay	Chum	32	0.28								0										0
26-Apr-19	Shoal Bay	Chum	31	0.29								0										0
26-Apr-19	Shoal Bay	Chinook	39	0.65								0										0
26-Apr-19	Shoal Bay	Chum	39	0.58								0										0
26-Apr-19	Shoal Bay	Chum	34	0.32								0										0
26-Apr-19	Shoal Bay	Chum	36	0.41								0										0
26-Apr-19	Shoal Bay	Chum	34	0.34								0										0
26-Apr-19	Shoal Bay	Chum	34	0.28								0										0
26-Apr-19	Shoal Bay	Chum	34	0.29								0										0
26-Apr-19	Shoal Bay	Chum	39	0.64								0										0
26-Apr-19	Shoal Bay	Chum	38	0.52								0										0
26-Apr-19	Shoal Bay	Chum	37	0.41								0										0
26-Apr-19	Shoal Bay	Chum	35	0.32								0										0
26-Apr-19	Shoal Bay	Chum	35	0.33								0										0
26-Apr-19	Shoal Bay	Chum	35	0.47								0										0
26-Apr-19	Shoal Bay	Chum	36	0.40								0										0
26-Apr-19	Shoal Bay	Chum	33	0.30								0										0

Date of seine	Location	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
26-Apr-19	Shoal Bay	Chum	33	0.27								0										0
26-Apr-19	Shoal Bay	Chum	35	0.36								0										0
26-Apr-19	Shoal Bay	Chum	35	0.38								0										0
26-Apr-19	Shoal Bay	Chum	34	0.36								0										0
26-Apr-19	Shoal Bay	Chum	36	0.40								0										0
26-Apr-19	Shoal Bay	Chum	34	0.38								0										0
26-Apr-19	Shoal Bay	Chum	35	0.42								0										0
26-Apr-19	Shoal Bay	Chum	37	0.45								0										0
27-May-19	Beautiful Bay	Pink	52	1.76								0										0
27-May-19	Beautiful Bay	Pink	60	2.19								0										0
27-May-19	Beautiful Bay	Pink	56	2.05								0										0
27-May-19	Beautiful Bay	Pink	58	1.91								0										0
27-May-19	Beautiful Bay	Chum	45	1.06								0										0
27-May-19	Beautiful Bay	Chum	36	0.61								0										0
27-May-19	Beautiful Bay	Chum	43	0.84								0										0
27-May-19	Beautiful Bay	Chum	33	0.39								0										0
27-May-19	Beautiful Bay	Chum	31	0.33								0										0
27-May-19	Beautiful Bay	Chum	39	0.70								0										0
27-May-19	Bessborough Bay	Pink	35	0.42								0										0
27-May-19	Bessborough Bay	Pink	48	1.02								0										0
27-May-19	Bessborough Bay	Pink	50	1.18								0										0
27-May-19	Bessborough Bay	Chum	35	0.52								0										0
27-May-19	Bessborough Bay	Pink	50	1.18								0										0
27-May-19	Bessborough Bay	Chum	35	0.52								0										0
27-May-19	Bessborough Bay	Chum	50	1.16								0										0
27-May-19	Blenkinsop Bay	Chum	88	6.73								0										0
27-May-19	Blenkinsop Bay	Chum	65	2.94								0										0
27-May-19	Blenkinsop Bay	Chum	75	4.45								0										0
27-May-19	Blenkinsop Bay	Chum	66	3.04								0										0
27-May-19	Blenkinsop Bay	Chum	55	1.83								0										0
27-May-19	Blenkinsop Bay	Chum	60	2.46								0										0
27-May-19	Blenkinsop Bay	Chum	69	3.83								0										0
27-May-19	Blenkinsop Bay	Chum	63	2.97								0										0
27-May-19	Blenkinsop Bay	Chum	72	4.26								0										0
27-May-19	Blenkinsop Bay	Chum	70	4.23								0										0
27-May-19	Blenkinsop Bay	Chum	66	3.35								0										0
27-May-19	Blenkinsop Bay	Chum	65	2.89								0										0
27-May-19	Blenkinsop Bay	Chum	55	1.93								0										0
27-May-19	Blenkinsop Bay	Chum	77	5.31								0										0
27-May-19	Blenkinsop Bay	Chum	82	5.76								0										0
27-May-19	Blenkinsop Bay	Chum	67	3.97								0										0
27-May-19	Blenkinsop Bay	Chum	67	3.34								0										0
27-May-19	Blenkinsop Bay	Chum	71	4.11								0										0
27-May-19	Blenkinsop Bay	Chum	60	2.47								0										0

Date of seine	Location	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
27-May-19	Blenkinsop Bay	Chum	69	3.55								0										0
27-May-19	Blenkinsop Bay	Chum	69	3.33								0										0
27-May-19	Blenkinsop Bay	Chum	61	2.60								0										0
27-May-19	Blenkinsop Bay	Chum	77	5.48								0										0
27-May-19	Blenkinsop Bay	Chum	58	2.29								0										0
27-May-19	Blenkinsop Bay	Chum	58	3.37								0										0
27-May-19	Blenkinsop Bay	Chum	59	2.37								0										0
27-May-19	Blenkinsop Bay	Chum	69	3.84								0										0
27-May-19	Blenkinsop Bay	Chum	62	2.66								0										0
27-May-19	Blenkinsop Bay	Chum	67	3.30								0										0
27-May-19	Blenkinsop Bay	Chum	71	4.01								0										0
27-May-19	Primary 1	Chum	31	0.43								0										0
27-May-19	Primary 1	Chum	35	0.36								0										0
27-May-19	Primary 3	Chum	35	0.45								0										0
27-May-19	Primary 3	Chum	36	0.51								0										0
27-May-19	Primary 3	Chum	50	1.24								0										0
27-May-19	Primary 3	Pink	35	0.55			1					1										0
27-May-19	Primary 3	Pink	36	0.51					1			1										0
27-May-19	Primary 3	Chum	35	0.58								0										0
27-May-19	Primary 3	Chum	43	0.89								0										0
27-May-19	Race Passage	Pink	56	1.59								0										0
27-May-19	Race Passage	Pink	52	1.49								0										0
27-May-19	Race Passage	Pink	40	0.74								0										0
27-May-19	Race Passage	Pink	58	2.19								0										0
27-May-19	Race Passage	Pink	50	1.37								0										0
27-May-19	Race Passage	Pink	43	0.81								0										0
27-May-19	Race Passage	Pink	54	1.71					1			1										0
27-May-19	Race Passage	Pink	61	1.75								0										0
27-May-19	Race Passage	Pink	53	1.88								0										0
27-May-19	Race Passage	Pink	54	1.62								0										0
27-May-19	Race Passage	Pink	51	1.61								0										0
27-May-19	Race Passage	Pink	50	1.37								0										0
27-May-19	Race Passage	Pink	47	1.10					1			1		1								1
27-May-19	Race Passage	Pink	60	2.27								0										0
27-May-19	Race Passage	Pink	48	1.28								0										0
27-May-19	Race Passage	Pink	36	0.56								0										0
27-May-19	Race Passage	Pink	41	0.68					1			1										0
27-May-19	Race Passage	Pink	51	1.51								0										0
27-May-19	Race Passage	Pink	47	1.11								0										0
27-May-19	Race Passage	Pink	50	1.48								0										0
27-May-19	Race Passage	Pink	52	1.74								0										0
27-May-19	Race Passage	Pink	50	1.35								0										0

Date of seine	Location	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
27-May-19	Race Passage	Pink	59	2.10								0										0
27-May-19	Race Passage	Pink	47	1.02								0										0
27-May-19	Race Passage	Pink	55	1.75								0										0
27-May-19	Race Passage	Pink	58	2.20								0										0
27-May-19	Race Passage	Pink	49	1.48			1					1										0
27-May-19	Race Passage	Pink	50	1.46								0										0
27-May-19	Race Passage	Pink	53	1.69								0										0
27-May-19	Race Passage	Chum	35	0.44								0										0
27-May-19	Race Passage	Chum	36	0.58								0										0
27-May-19	Race Passage	Chum	47	1.22								0										0
27-May-19	Race Passage	Chum	36	0.54								0										0
27-May-19	Race Passage	Chum	48	1.82								0										0
27-May-19	Race Passage	Chum	35	0.44								0										0
27-May-19	Race Passage	Chum	41	0.85								0										0
27-May-19	Race Passage	Chum	56	2.06								0										0
27-May-19	Race Passage	Chum	49	1.32								0										0
27-May-19	Race Passage	Chum	47	1.34			1					1										0
27-May-19	Sunderland	Pink	37	0.50			1					1										0
27-May-19	Sunderland	Pink	47	1.23								0										0
27-May-19	Sunderland	Pink	37	0.50								0										0
27-May-19	Sunderland	Pink	55	1.85								0										0
27-May-19	Sunderland	Pink	50	1.25								0										0
27-May-19	Sunderland	Pink	53	1.35								0										0
27-May-19	Sunderland	Pink	50	1.52								0										0
27-May-19	Sunderland	Pink	50	1.28					1			1										0
27-May-19	Sunderland	Pink	40	0.85								0										0
27-May-19	Sunderland	Chum	54	1.83								0										0
27-May-19	Sunderland	Pink	58	1.85								0										0
27-May-19	Sunderland	Pink	54	1.53								0										0
27-May-19	Sunderland	Pink	55	1.78								0										0
27-May-19	Sunderland	Pink	60	1.77								0										0
27-May-19	Sunderland	Pink	46	0.91								0										0
27-May-19	Sunderland	Pink	48	1.20			1					1										0
27-May-19	Sunderland	Pink	60	2.40								0										0
27-May-19	Sunderland	Pink	53	1.67								0										0
27-May-19	Sunderland	Pink	45	0.96								0										0
27-May-19	Sunderland	Pink	52	1.39								0										0
27-May-19	Sunderland	Pink	52	1.43								0										0
27-May-19	Sunderland	Pink	50	1.28								0										0
27-May-19	Sunderland	Pink	48	1.14								0										0
27-May-19	Sunderland	Pink	50	1.38								0										0
27-May-19	Sunderland	Pink	44	1.04								0										0

Date of seine	Location	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
27-May-19	Sunderland	Pink	43	0.87								0										0
27-May-19	Sunderland	Pink	46	1.01								0										0
27-May-19	Sunderland	Pink	58	1.88								0										0
27-May-19	Sunderland	Pink	46	1.14								0										0
27-May-19	Sunderland	Pink	56	2.17								0										0
27-May-19	Sunderland	Pink	60	2.46	1							1										0
27-May-19	Sunderland	Pink	64	2.68								0										0
27-May-19	Sunderland	Chum	46	1.18								0										0
27-May-19	Sunderland	Chum	50	1.54								0										0
27-May-19	Sunderland	Chum	44	0.76								0										0
27-May-19	Sunderland	Chum	40	0.81								0										0
27-May-19	Sunderland	Chum	35	1.51								0										0
27-May-19	Sunderland	Chum	50	1.70								0										0
27-May-19	Wellbore Channel	Chum	50	1.43								0										0
27-May-19	Wellbore Channel	Chum	53	1.49								0										0
27-May-19	Wellbore Channel	Chum	46	1.09								0										0
27-May-19	Wellbore Channel	Chum	60	2.46								0										0
27-May-19	Wellbore Channel	Chum	37	0.63								0										0
28-May-19	Bear Bay	Coho	110	15.31								0										0
28-May-19	Bear Bay	Pink	46	0.96			1					1										0
28-May-19	Bickley Bay	Pink	45	0.87			1					1										0
28-May-19	Bickley Bay	Pink	53	1.45								0		1								1
28-May-19	Bickley Bay	Pink	55	1.68								0										0
28-May-19	Bickley Bay	Pink	57	1.94								0										0
28-May-19	Bickley Bay	Pink	52	1.59								0										0
28-May-19	Bickley Bay	Pink	54	1.77								0										0
28-May-19	Bickley Bay	Pink	48	1.22								0										0
28-May-19	Bickley Bay	Pink	58	2.20								0										0
28-May-19	Bickley Bay	Pink	50	1.27								0										0
28-May-19	Bickley Bay	Pink	56	1.61								0										0
28-May-19	Bickley Bay	Pink	56	1.78								0										0
28-May-19	Bickley Bay	Pink	50	1.26								0										0
28-May-19	Bickley Bay	Pink	47	1.06				1				1										0
28-May-19	Bickley Bay	Pink	55	2.04								0										0
28-May-19	Bickley Bay	Pink	48	1.30								0										0
28-May-19	Bickley Bay	Pink	58	1.85								0										0
28-May-19	Bickley Bay	Pink	52	1.39								0										0
28-May-19	Bickley Bay	Pink	58	1.92								0										0
28-May-19	Bickley Bay	Pink	51	1.37								0		1								1
28-May-19	Bickley Bay	Pink	45	1.03								0										0
28-May-19	Bickley Bay	Pink	45	0.92								0										0
28-May-19	Bickley Bay	Pink	50	1.44								0										0

Date of seine	Location	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
28-May-19	Bickley Bay	Pink	60	2.13								0										0
28-May-19	Bickley Bay	Pink	47	1.05								0										0
28-May-19	Bickley Bay	Pink	50	1.23								0										0
28-May-19	Bickley Bay	Pink	50	1.47								0										0
28-May-19	Bickley Bay	Pink	46	1.03								0										0
28-May-19	Bickley Bay	Pink	54	1.74					1			1										0
28-May-19	Bickley Bay	Pink	52	1.38								0										0
28-May-19	Bickley Bay	Chum	38	0.56								0										0
28-May-19	Bickley Bay	Chum	60	2.62		1						1										0
28-May-19	Bickley Bay	Chum	60	2.42								0										0
28-May-19	Bickley Bay	Chum	79	5.67								0										0
28-May-19	Bickley Bay	Chum	63	2.56								0										0
28-May-19	Bickley Bay	Chum	53	1.78								0										0
28-May-19	Bickley Bay	Chum	45	1.05								0										0
28-May-19	Bickley Bay	Chum	62	2.65								0										0
28-May-19	Bickley Bay	Chum	72	4.25								0										0
28-May-19	Bickley Bay	Chum	57	2.26								0										0
28-May-19	Bickley Bay	Chum	41	0.67								0										0
28-May-19	Bickley Bay	Chum	52	1.69								0										0
28-May-19	Bickley Bay	Chum	56	1.89								0										0
28-May-19	Bickley Bay	Chum	58	2.38								0										0
28-May-19	Bickley Bay	Chum	56	2.13								0	1									1
28-May-19	Bickley Bay	Chum	65	2.99								0	1									1
28-May-19	Bickley Bay	Chum	67	3.46								0										0
28-May-19	Bickley Bay	Chum	56	1.76	1		1					2										0
28-May-19	Bickley Bay	Chum	56	2.11								0										0
28-May-19	Bickley Bay	Chum	57	2.22		1						1										0
28-May-19	Bickley Bay	Chum	60	2.48								0										0
28-May-19	Bickley Bay	Chum	61	2.62				1				1										0
28-May-19	Bickley Bay	Chum	54	1.92								0										0
28-May-19	Bickley Bay	Chum	47	1.11								0										0
28-May-19	Bickley Bay	Chum	60	2.75								0										0
28-May-19	Bickley Bay	Chum	56	2.09			1					1										0
28-May-19	Bickley Bay	Chum	51	1.63								0										0
28-May-19	Bickley Bay	Chum	87	7.75								0										0
28-May-19	Bickley Bay	Chum	58	2.41		1						1										0
28-May-19	Bickley Bay	Chum	59	2.42								0										0
28-May-19	Bickley Bay	Chum	57	2.10								0										0
28-May-19	Cordero	Chum	48	1.60			3					3										0
28-May-19	Cordero	Chum	56	2.18			2					2										0
28-May-19	Cordero	Chum	60	2.93					1			1										0
28-May-19	Cordero	Chum	48	1.54			1					1										0

Date of seine	Location	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
28-May-19	Cordero	Chum	58	2.58								0										0
28-May-19	Cordero	Chum	51	1.77		2						2										0
28-May-19	Cordero	Chum	64	3.33	1		1					2										0
28-May-19	Cordero	Chum	51	1.91		1						1										0
28-May-19	Cordero	Chum	47	1.34								0										0
28-May-19	Cordero	Chum	56	1.82								0										0
28-May-19	Cordero	Chum	43	1.04								0										0
28-May-19	Cordero	Chum	54	1.73								0										0
28-May-19	Cordero	Chum	54	1.91								0										0
28-May-19	Cordero	Chum	55	2.30	1							1										0
28-May-19	Cordero	Chum	52	1.84		1						1										0
28-May-19	Cordero	Chum	65	3.99								0										0
28-May-19	Cordero	Chum	66	3.74								0										0
28-May-19	Cordero	Chum	55	1.74					1			1										0
28-May-19	Cordero	Chum	75	5.05								0										0
28-May-19	Cordero	Chum	67	3.36								0										0
28-May-19	Cordero	Chum	66	3.58								0										0
28-May-19	Cordero	Chum	69	3.79								0										0
28-May-19	Cordero	Chum	73	4.34								0										0
28-May-19	Cordero	Chum	65	3.92								0										0
28-May-19	Cordero	Chum	71	4.51			1					1										0
28-May-19	Cordero	Chum	64	3.17								0										0
28-May-19	Cordero	Chum	62	2.63								0										0
28-May-19	Cordero	Pink	75	4.86								0										0
28-May-19	Cordero	Chum	63	2.45								0										0
28-May-19	Cordero	Pink	66	3.53								0										0
28-May-19	Cordero	Chum	62	2.96								0										0
28-May-19	Cordero	Chum	61	2.67								0										0
28-May-19	Cordero	Chum	69	3.94								0										0
28-May-19	Cordero	Chum	68	3.33								0										0
28-May-19	Cordero	Pink	74	4.66								0										0
28-May-19	Cordero	Pink	72	4.68								0										0
28-May-19	Cordero	Pink	55	2.12								0										0
28-May-19	Cordero	Pink	51	1.60								0										0
28-May-19	Cordero	Pink	60	2.90								0										0
28-May-19	Cordero	Pink	59	2.79								0										0
28-May-19	Cordero	Pink	63	2.86				1	1			2										0
28-May-19	Cordero	Pink	55	2.15								0										0
28-May-19	Cordero	Chum	71	4.38								0										0
28-May-19	Cordero	Pink	71	4.33							1	1										0
28-May-19	Cordero	Chum	56	2.47								0										0
28-May-19	Cordero	Chum	50	1.55								0										0

Date of seine	Location	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
28-May-19	Cordero	Pink	70	4.47								0										0
28-May-19	Cordero	Pink	49	1.28								0										0
28-May-19	Cordero	Pink	53	2.05								0										0
28-May-19	Cordero	Pink	58	2.41								0										0
28-May-19	Cordero	Pink	65	3.54								0										0
28-May-19	Cordero	Pink	37	0.64				1	1	1		3										0
28-May-19	Cordero	Pink	65	3.15								0										0
28-May-19	Cordero	Pink	66	3.80					1			1										0
28-May-19	Cordero	Pink	60	2.56								0										0
28-May-19	Cordero	Pink	76	5.36								0										0
28-May-19	Cordero	Pink	33	0.67		1						1										0
28-May-19	Cordero	Chum	60	2.67								0										0
28-May-19	Cordero	Pink	57	2.19								0										0
28-May-19	Cordero	Pink	64	3.10				1				1										0
28-May-19	Discovery	Pink	46	1.33								0										0
28-May-19	Discovery	Pink	42	1.08								0										0
28-May-19	Discovery	Pink	42	1.02								0										0
28-May-19	Discovery	Pink	47	1.29								0										0
28-May-19	Discovery	Pink	72	3.58								0										0
28-May-19	Discovery	Pink	60	2.61								0										0
28-May-19	Discovery	Pink	45	1.09								0										0
28-May-19	Discovery	Pink	44	0.92								0										0
28-May-19	Discovery	Pink	45	0.90			1					1										0
28-May-19	Discovery	Pink	45	1.25								0										0
28-May-19	Discovery	Pink	47	1.23								0										0
28-May-19	Discovery	Pink	45	1.29								0										0
28-May-19	Discovery	Pink	45	0.80			1					1										0
28-May-19	Discovery	Pink	47	1.36								0										0
28-May-19	Discovery	Pink	46	1.20			1					1										0
28-May-19	Discovery	Pink	47	1.28			1					1										0
28-May-19	Discovery	Pink	44	0.97								0										0
28-May-19	Discovery	Pink	42	0.74			1					1										0
28-May-19	Discovery	Pink	46	1.03								0										0
28-May-19	Discovery	Pink	63	3.23								0										0
28-May-19	Discovery	Pink	53	1.60								0										0
28-May-19	Discovery	Pink	50	1.23								0										0
28-May-19	Discovery	Pink	45	0.96								0										0
28-May-19	Discovery	Pink	56	1.73								0										0
28-May-19	Discovery	Pink	45	1.46								0										0
28-May-19	Discovery	Pink	55	2.10								0										0
28-May-19	Discovery	Pink	47	1.08								0										0
28-May-19	Discovery	Pink	42	0.88								0										0

Date of seine	Location	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
28-May-19	Discovery	Pink	74	3.55								0										0
28-May-19	Discovery	Pink	43	0.99								0										0
28-May-19	Discovery	Chum	82	5.97								0										0
28-May-19	Discovery	Chum	70	4.65								0										0
28-May-19	Discovery	Chum	45	1.17		1						1										0
28-May-19	Discovery	Chum	70	4.64			1					1										0
28-May-19	Discovery	Chum	76	5.11	1		1					2										0
28-May-19	Discovery	Chum	48	1.38								0			1					1		2
28-May-19	Discovery	Chum	68	4.43			1					1										0
28-May-19	Discovery	Chum	50	1.41								0										0
28-May-19	Discovery	Chum	65	3.48								0										0
28-May-19	Discovery	Chum	68	3.91			2	1				3										0
28-May-19	Discovery	Chum	70	4.40								0										0
28-May-19	Discovery	Chum	48	1.52								0										0
28-May-19	Discovery	Chum	70	4.81			1					1										0
28-May-19	Discovery	Chum	50	1.30								0										0
28-May-19	Discovery	Chum	68	4.27								0										0
28-May-19	Discovery	Chum	66	3.20								0										0
28-May-19	Discovery	Chum	66	3.88								0										0
28-May-19	Discovery	Chum	73	5.19								0										0
28-May-19	Discovery	Chum	72	3.78			1					1										0
28-May-19	Discovery	Chum	66	3.99								0										0
28-May-19	Discovery	Chum	64	3.93								0		1		1						2
28-May-19	Discovery	Chum	70	4.00								0								1		1
28-May-19	Discovery	Chum	70	4.34								0										0
28-May-19	Discovery	Chum	72	4.54								0										0
28-May-19	Discovery	Chum	70	4.58								0										0
28-May-19	Discovery	Chum	65	3.64								0										0
28-May-19	Discovery	Chum	70	4.37								0										0
28-May-19	Discovery	Chum	70	4.45				1				1										0
28-May-19	Discovery	Chum	70	3.58								0		1								1
28-May-19	Discovery	Chum	65	3.24								0										0
28-May-19	Discovery	Chum	48	1.37								0										0
28-May-19	Fanny Bay	Chum	44	0.95								0										0
28-May-19	Fanny Bay	Chum	51	1.50		1						1										0
28-May-19	Fanny Bay	Chum	47	1.13								0										0
28-May-19	Fanny Bay	Chum	36	0.43								0										0
28-May-19	Fanny Bay	Chum	44	0.97								0										0
28-May-19	Fanny Bay	Chum	54	1.73								0										0
28-May-19	Fanny Bay	Chum	34	0.35								0										0
28-May-19	Fanny Bay	Pink	59	2.38								0										0
28-May-19	Fanny Bay	Pink	54	1.47								0										0

Date of seine	Location	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
28-May-19	Fanny Bay	Pink	63	2.37								0										0
28-May-19	Fanny Bay	Chinook	51	1.72								0										0
28-May-19	Fanny Bay	Coho	53	1.89								0										0
28-May-19	Knox Bay	Chum	70	5.00								0										0
28-May-19	Knox Bay	Chum	67	3.64								0										0
28-May-19	Knox Bay	Pink	48	0.98								0										0
28-May-19	Knox Bay	Chum	65	3.15								0										0
28-May-19	Nodales	Pink	42	0.87								0										0
28-May-19	Nodales	Pink	64	3.04								0		1								1
28-May-19	Nodales	Pink	59	2.51								0										0
28-May-19	Nodales	Pink	70	3.35								0		1								1
28-May-19	Nodales	Pink	34	0.74		1						1										0
28-May-19	Nodales	Pink	52	1.64								0										0
28-May-19	Nodales	Pink	54	1.86								0										0
28-May-19	Nodales	Pink	51	1.79								0				1						1
28-May-19	Nodales	Pink	55	1.95								0										0
28-May-19	Nodales	Pink	43	1.00								0										0
28-May-19	Nodales	Pink	62	3.05								0										0
28-May-19	Nodales	Pink	43	0.99								0										0
28-May-19	Nodales	Pink	55	2.25	1							1										0
28-May-19	Nodales	Pink	56	2.19								0				1						1
28-May-19	Nodales	Pink	51	1.45								0										0
28-May-19	Nodales	Pink	57	2.05								0										0
28-May-19	Nodales	Pink	52	1.74								0										0
28-May-19	Nodales	Pink	52	1.66								0										0
28-May-19	Nodales	Pink	50	1.43		1	1					2										0
28-May-19	Nodales	Pink	40	0.73				1				1										0
28-May-19	Nodales	Pink	43	0.98								0					1					1
28-May-19	Nodales	Pink	48	1.32								0										0
28-May-19	Nodales	Pink	51	1.76								0										0
28-May-19	Nodales	Pink	40	0.86								0										0
28-May-19	Nodales	Pink	46	1.21		1						1		1								1
28-May-19	Nodales	Pink	57	1.74								0		1								1
28-May-19	Nodales	Pink	56	1.94								0										0
28-May-19	Nodales	Pink	54	2.35					1			1										0
28-May-19	Nodales	Pink	49	1.32								0										0
28-May-19	Nodales	Pink	56	1.86		1						1										0
28-May-19	Nodales	Chum	51	1.69	1		1					2										0
28-May-19	Nodales	Chum	54	1.88								0										0
28-May-19	Nodales	Chum	51	1.93	1		2					3										0
28-May-19	Nodales	Chum	49	1.62		1		1				2										0
28-May-19	Nodales	Chum	46	1.21								0		1								1

Date of seine	Location	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
28-May-19	Nodales	Chum	46	1.12	1							1										0
28-May-19	Nodales	Chum	55	2.01								0										0
28-May-19	Nodales	Chum	56	2.26								0										0
28-May-19	Nodales	Chum	55	2.09								0		1								1
28-May-19	Nodales	Chum	55	2.05		1						1										0
28-May-19	Nodales	Chum	54	2.10	1		1					2	1									1
28-May-19	Nodales	Chum	52	1.91								0	1									1
28-May-19	Nodales	Chum	59	2.47								0										0
28-May-19	Nodales	Chum	52	1.46								0				1						1
28-May-19	Nodales	Chum	55	1.99	1							1										0
28-May-19	Nodales	Chum	56	2.21	1							1										0
28-May-19	Nodales	Chum	53	2.16			1					1		1								1
28-May-19	Nodales	Chum	49	1.25		1	1		1			3										0
28-May-19	Nodales	Chum	49	1.27								0										0
28-May-19	Nodales	Chum	62	2.84	1	1						2										0
28-May-19	Nodales	Chum	41	0.73			1					1										0
28-May-19	Nodales	Chum	53	1.90								0										0
28-May-19	Nodales	Chum	48	1.30	1		1					2										0
28-May-19	Nodales	Chum	59	2.55			2					2		1								1
28-May-19	Okisollo	Chum	63	3.85								0										0
28-May-19	Okisollo	Chum	62	3.83								0										0
28-May-19	Okisollo	Chum	60	3.17								0										0
28-May-19	Okisollo	Chum	79	5.61								0										0
28-May-19	Okisollo	Chum	60	3.61								0										0
28-May-19	Okisollo	Chum	79	6.47								0										0
28-May-19	Okisollo	Chum	76	5.01								0										0
28-May-19	Okisollo	Chum	60	3.43								0										0
28-May-19	Okisollo	Chum	63	3.45								0										0
28-May-19	Okisollo	Chum	61	2.80				1				1										0
28-May-19	Okisollo	Chum	49	1.60								0										0
28-May-19	Okisollo	Chum	57	3.07								0										0
28-May-19	Okisollo	Chum	61	4.20								0										0
28-May-19	Okisollo	Chum	39	0.79								0					1					1
28-May-19	Okisollo	Chum	48	1.28								0										0
28-May-19	Okisollo	Chum	66	3.45								0										0
28-May-19	Okisollo	Chum	63	3.21								0										0
28-May-19	Okisollo	Chum	65	4.32								0										0
28-May-19	Okisollo	Chum	72	3.27								0										0
28-May-19	Okisollo	Chum	64	4.01								0										0
28-May-19	Okisollo	Chum	61	2.88								0										0
28-May-19	Okisollo	Chum	60	3.47								0										0
28-May-19	Okisollo	Chum	58	2.32								0										0

Date of seine	Location	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
28-May-19	Okisollo	Chum	65	3.57								0										0
28-May-19	Okisollo	Chum	70	3.99								0										0
28-May-19	Okisollo	Chum	53	2.38								0										0
28-May-19	Okisollo	Chum	61	3.13								0										0
28-May-19	Okisollo	Chum	67	3.20								0										0
28-May-19	Okisollo	Pink	73	4.14								0										0
28-May-19	Okisollo	Pink	41	1.02								0										0
28-May-19	Okisollo	Pink	47	1.20								0										0
28-May-19	Okisollo	Pink	59	2.99								0										0
28-May-19	Okisollo	Pink	70	3.75								0										0
28-May-19	Okisollo	Pink	59	2.10								0										0
28-May-19	Okisollo	Pink	45	0.86								0										0
28-May-19	Okisollo	Chum	61	2.86								0										0
28-May-19	Okisollo	Chum	57	2.27								0										0
28-May-19	Okisollo	Pink	45	0.94								0										0
28-May-19	Okisollo	Pink	46	0.99								0										0
28-May-19	Okisollo	Chum	62	3.40								0										0
28-May-19	Okisollo	Pink	43	0.82	1							1										0
28-May-19	Okisollo	Pink	44	0.91								0										0
28-May-19	Okisollo	Pink	69	4.27								0										0
28-May-19	Okisollo	Pink	42	0.98								0										0
28-May-19	Okisollo	Pink	46	0.99								0										0
28-May-19	Rock Bay	Pink	50	1.34								0										0
28-May-19	Rock Bay	Pink	48	1.52								0										0
28-May-19	Rock Bay	Chum	59	2.27								0										0
28-May-19	Rock Bay	Chum	65	2.89								0										0
28-May-19	Rock Bay	Chum	72	4.20								0										0
28-May-19	Rock Bay	Chum	56	2.20								0										0
28-May-19	Rock Bay	Chum	75	4.36								0										0
28-May-19	Rock Bay	Chum	41	0.78								0										0
28-May-19	Shoal Bay	Chum	46	1.25								0										0
28-May-19	Shoal Bay	Chum	42	1.10								0										0
28-May-19	Shoal Bay	Chum	44	1.06								0										0
28-May-19	Shoal Bay	Chum	43	0.87								0										0
28-May-19	Shoal Bay	Chum	49	1.40								0										0
28-May-19	Shoal Bay	Chum	32	0.57								0										0
28-May-19	Shoal Bay	Chum	39	0.62								0										0
28-May-19	Shoal Bay	Chum	45	1.14								0		1								1
28-May-19	Shoal Bay	Chum	55	1.78								0										0
28-May-19	Shoal Bay	Chum	39	0.56								0										0
28-May-19	Shoal Bay	Chum	49	1.17								0										0
28-May-19	Shoal Bay	Chum	38	0.54								0										0

Date of seine	Location	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
28-May-19	Shoal Bay	Chum	48	1.40								0										0
28-May-19	Shoal Bay	Chum	43	0.86		1						1										0
28-May-19	Shoal Bay	Chum	44	0.90								0										0
28-May-19	Shoal Bay	Chum	44	1.29								0										0
28-May-19	Shoal Bay	Chum	47	1.20								0										0
28-May-19	Shoal Bay	Chum	41	0.71								0										0
28-May-19	Shoal Bay	Chum	38	0.59								0										0
28-May-19	Shoal Bay	Chum	50	1.74								0										0
28-May-19	Shoal Bay	Chum	43	1.10								0										0
28-May-19	Shoal Bay	Chum	40	0.74								0	1									1
28-May-19	Shoal Bay	Chum	47	1.09								0		1								1
28-May-19	Shoal Bay	Chum	51	1.80								0										0
28-May-19	Shoal Bay	Chum	43	1.20								0										0
28-May-19	Shoal Bay	Chum	39	0.75								0										0
28-May-19	Shoal Bay	Chum	39	0.56								0										0
28-May-19	Shoal Bay	Chum	47	1.00								0										0
28-May-19	Shoal Bay	Chum	38	0.60								0										0
28-May-19	Shoal Bay	Chum	46	1.14								0										0
28-May-19	Shoal Bay	Pink	40	0.78								0										0
28-May-19	Shoal Bay	Pink	38	0.60								0										0
28-May-19	Shoal Bay	Pink	46	1.10								0										0
28-May-19	Shoal Bay	Pink	38	0.60								0										0
28-May-19	Shoal Bay	Pink	46	1.10								0										0
28-May-19	Shoal Bay	Pink	52	1.38								0										0
28-May-19	Shoal Bay	Pink	57	2.08								0										0
28-May-19	Shoal Bay	Pink	48	1.17								0										0
28-May-19	Shoal Bay	Pink	38	0.56								0										0
28-May-19	Shoal Bay	Pink	44	0.96								0										0
28-May-19	Shoal Bay	Pink	54	1.75								0										0
28-May-19	Shoal Bay	Pink	43	0.79			1					1										0
28-May-19	Shoal Bay	Pink	50	1.46								0										0
28-May-19	Shoal Bay	Pink	37	0.44								0										0
28-May-19	Shoal Bay	Pink	46	1.13								0										0
28-May-19	Shoal Bay	Pink	38	0.58								0										0
28-May-19	Shoal Bay	Pink	43	0.91								0										0
28-May-19	Shoal Bay	Pink	42	0.82								0										0
28-May-19	Shoal Bay	Pink	40	0.62								0										0
28-May-19	Shoal Bay	Pink	40	0.74								0										0
28-May-19	Shoal Bay	Pink	41	0.79								0										0
28-May-19	Shoal Bay	Pink	40	0.91								0										0
28-May-19	Shoal Bay	Pink	45	1.08								0										0
28-May-19	Shoal Bay	Pink	43	0.99								0										0
28-May-19	Shoal Bay	Pink	44	0.90								0										0
28-May-19	Shoal Bay	Pink	45	0.88								0										0

Date of seine	Location	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
28-May-19	Shoal Bay	Pink	47	0.92								0										0
28-May-19	Shoal Bay	Pink	53	1.28								0										0
28-May-19	Shoal Bay	Pink	44	0.76								0										0
28-May-19	Shoal Bay	Pink	46	0.93								0										0
28-May-19	Shoal Bay	Pink	38	0.58								0										0
28-May-19	Shoal Bay	Pink	41	0.68								0										0
28-May-19	Shoal Bay	Pink	42	0.81								0										0
29-May-19	Raza	Sockeye	92	10.36								0		1	1	1	2					5
29-May-19	Raza	Sockeye	95	12.05								0		1	3							4
29-May-19	Raza	Chum	95	9.93								0										0
29-May-19	Raza	Chum	102	14.43								0										0
29-May-19	Raza	Chum	102	11.74								0										0
29-May-19	Raza	Chum	104	13.46								0		2								2
29-May-19	Raza	Chum	112	14.92								0										0
29-May-19	Raza	Chum	50	1.47				2				2										0
29-May-19	Raza	Chum	52	1.68			1					1										0
29-May-19	Raza	Chum	54	1.85								0										0
29-May-19	Raza	Chum	55	1.58			2					2		0								0
29-May-19	Raza	Chum	48	1.42								0										0
29-May-19	Raza	Chum	48	1.56								0										0
29-May-19	Raza	Chum	50	1.59			1					1										0
29-May-19	Raza	Chum	50	1.59			1					1										0
29-May-19	Raza	Chum	45	1.28			1					1										0
29-May-19	Raza	Chum	50	1.32								0										0
29-May-19	Raza North	Chum	51	1.86			1		2			3										0
29-May-19	Raza North	Chum	47	1.21								0										0
29-May-19	Raza North	Chum	55	1.80	1				1			2										0
29-May-19	Raza North	Chum	47	1.25		1						1										0
29-May-19	Raza North	Chum	52	1.48								0										0
29-May-19	Raza North	Chum	54	1.56					1			1										0
29-May-19	Raza North	Chum	45	0.96								0										0
29-May-19	Raza North	Chum	54	1.46		2						2										0
29-May-19	Raza North	Chum	46	1.26				1				1										0
29-May-19	Raza North	Chum	35	0.44								0										0
29-May-19	Raza North	Chum	53	1.57		1			1			2										0
29-May-19	Raza North	Chum	40	0.72			1					1										0
29-May-19	Raza North	Chum	50	1.38			1					1										0
29-May-19	Raza North	Chum	46	1.00			1					1										0
29-May-19	Raza North	Chum	45	1.07								0										0
29-May-19	Raza North	Chum	44	0.96		2						2										0
29-May-19	Raza North	Chum	53	1.56			2		1			3										0
29-May-19	Raza North	Chum	54	1.63		1						1										0
29-May-19	Raza North	Chum	51	1.26					1			1										0

Date of seine	Location	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
29-May-19	Raza North	Chum	48	1.17	1	1						2										0
29-May-19	Raza North	Chum	42	0.86		1	2					3										0
29-May-19	Raza North	Chum	48	0.94								0										0
29-May-19	Raza North	Chum	55	1.90	1	1						2										0
29-May-19	Raza North	Chum	40	0.66	1							1										0
29-May-19	Raza North	Chum	69	4.01				2				2										0
29-May-19	Raza North	Chum	92	7.93								0										0
29-May-19	Raza North	Chum	37	0.57		1						1										0
29-May-19	Raza North	Chum	57	1.91								0										0

Appendix IV – 2017-2019 Comparisons

Surface water temperature comparisons between data collected at Pre-Exposure Sites in Discovery Islands in 2017 – 2019.

Site Name	April Temp (°C)			May Temp (°C)		
	2017	2018	2019	2017	2018	2019
Francisco Point	10.1	9.0	9.7	20.0	16.4	18.2
Marina Island	10.5	10.0	9.6	19.5	17.7	22.2
Rebecca Spit	9.8	10.0	10.7	21.2	17.0	21.7
Viner Point	10.0	10.0	10.6	19.7	16.7	18.0
SE Hill Island	10.1	10.0	10.9	20.8	17.7	19.3
Penn Island	10.3	10.0	11.1	20.2	18.5	18.2
Deepwater Bay	9.4	9.5	10.6	21.6	15.4	13.3
Average	**10.0**	**9.8**	**10.5**	**20.4**	**17.1**	**18.7**

Surface water salinity comparison between data collected at Pre-Exposure Sites in Discovery Islands in 2017 – 2019.

Site Name	April Salinity (ppt)			May Salinity (ppt)		
	2017	2018	2019	2017	2018	2019
Francisco Point	27.1	26.0	31.5	19.7	24.7	27.8
Marina Island	27.5	25.0	31.2	19.3	22.7	24.8
Rebecca Spit	25.2	25.0	30.6	19.3	27.0	24.6
Viner Point	27.5	23.0	31.7	19.1	26.5	25.9
SE Hill Island	27.7	22.0	31.6	18.2	26.7	24.0
Penn Island	27.5	24.0	31.5	17.5	26.6	24.7
Deepwater Bay	25.4	29.0	31.8	17.8	30.8	30.7
Average	**26.8**	**24.9**	**31.4**	**18.7**	**26.4**	**26.1**

Surface water temperature comparisons between data collected at Post-Exposure Sites in Discovery Islands in 2017 – 2019.

Site Name	April Temp (°C)			May Temp (°C)		
	2017	2018	2019	2017	2018	2019
Raza	10.5	10.0	12.0	23.3	17.6	18.1
Raza North	11.4	10.0	12.6	22.6	18.8	20.1
Okisollo	9.7	9.0	-	17.7	13.8	12.3
Owen Bay	9.6	9.5	-	20.3	15.4	15.4
Rock Bay	9.5	9.0	9.4	13.6	11.1	16.4
Discovery	9.4	9.0	11.2	13.0	13.6	13.4
Nodales	9.3	9.0	12.7	14.3	13.2	17.1
Shoal Bay	9.4	9.0	12.3	14.3	14.4	15.7
Fanny Bay	8.9	9.0	-	13.5	13.3	15.7
Bickley Bay	9.4	9.0	14.0	12.7	14.1	14.8
Cordero	9.5	9.0	-	12.6	12.2	13.7
Knox Bay	9.6	9.0	12.5	12.7	11.6	17.4
Bear Bay	9.6	9.0	11.4	13.6	11.5	13.5
Chancellor Channel	9.3	10.0	10.6	14.1	11.0	15.2
Race Passage	9.3	9.0	12.0	14.0	10.7	13.2
Wellbore Channel	9.0	-	11.0	13.4	10.2	12.3
Bessborough Bay	9.2	9.0	11.8	14.0	11.0	15.5
Sunderland	9.1	9.0	11.5	13.6	10.2	12.7
Blenkinsop Bay	9.1	11.0	11.5	16.0	11.9	13.9
Primary 3	9.1	9.0	9.6	13.8	10.2	12.0
Primary 1	9.9	9.5	9.2	13.3	10.6	11.0
Beautiful Bay	9.2	8.0	8.9	14.1	10.4	12.3
Average	**9.5**	**9.2**	**11.3**	**15.0**	**12.6**	**14.6**

Surface water salinity comparison between data collected at Post-Exposure Sites in Discovery Islands in 2017 – 2019.

Site Name	April Salinity (ppt)			May Salinity (ppt)		
	2017	2018	2019	2017	2018	2019
Raza	23.3	21.0	28.4	11.1	7.4	22.0
Raza North	22.9	8.0	27.2	11.6	8.7	17.2
Okisollo	28.9	28.0	-	21.9	31.8	32.0
Owen Bay	28.9	25.0	-	21.4	32.4	30.4
Rock Bay	28.8	27.0	31.0	24.7	32.3	33.4
Discovery	29.0	26.0	26.0	27.1	32.5	29.9
Nodales	26.4	27.0	32.6	25.3	31.5	-
Shoal Bay	23.4	26.0	29.0	21.6	27.1	28.8
Fanny Bay	8.2	19.0	-	11.5	30.3	29.2
Bickley Bay	28.5	25.0	27.5	24.5	31.5	29.4
Cordero	29.1	25.0	-	24.3	32.4	28.7
Knox Bay	29.4	24.0	15.0	24.7	32.9	26.5
Bear Bay	29.2	28.0	24.4	25.5	32.7	24.0
Chancellor Channel	28.9	25.0	32.2	8.9	32.7	31.1
Race Passage	18.0	27.0	34.0	24.3	33.6	31.9
Wellbore Channel	27.3	26.0	16.0	24.6	32.9	31.9
Bessborough Bay	29.7	26.0	30.3	20.7	33.1	35.4
Sunderland	29.7	26.0	34.2	24.8	33.1	33.6
Blenkinsop Bay	29.5	20.0	33.3	16.3	32.3	31.1
Primary 3	30.0	26.0	33.3	24.4	33.7	31.7
Primary 1	28.7	-	26.1	24.3	33.9	31.9
Beautiful Bay	29.4	20.0	32.5	23.9	33.7	31.6
Average	**26.7**	**23.2**	**28.5**	**21.2**	**30.1**	**29.6**

A comparison of the results of analysis for sea lice infestation on samples collected at Pre-Exposure Sites in Discovery Islands in 2017 – 2019.

Species	Year	Sample Size	Number of Fish Infested	Number of Lice	Prevalence (%)	Abundance
Chum	2017	215	40	95	18.6	0.44
	2018	123	30	36	24.4	0.29
	2019	126	35	62	27.8	0.49
Pink	2017	97	23	55	23.7	0.57
	2018	125	29	38	23.2	0.30
	2019	40	5	9	12.5	0.23
Coho	2017	44	11	12	25.0	0.27
	2018	1	0	0	0	-
	2019	19	10	40	52.6	2.11
Chinook	2017	12	4	5	33.3	0.42
	2018	15	0	0	0	-
	2019	0	0	0	0	-
All Species	**2017**	**368**	**78**	**167**	**21.2**	**0.45**
	2018	**264**	**59**	**74**	**22.3**	**0.28**
	2019	**185**	**50**	**111**	**27.0**	**0.60**

A comparison of the results of analysis for sea lice infestation on samples collected at Post-Exposure Sites in Discovery Islands in 2017 – 2019.

Species	Year	Sample Size	Number of Fish Infested	Number of Lice	Prevalence (%)	Abundance
Chum	2017	727	48	54	6.6	0.07
	2018	599	24	25	4.0	0.04
	2019	519	120	175	23.1	0.34
Pink	2017	277	25	27	9.0	0.10
	2018	309	15	16	4.9	0.05
	2019	470	53	60	11.3	0.13
Coho	2017	44	8	9	18.2	0.20
	2018	33	4	10	12.1	0.30
	2019	21	0	0	0	0
Chinook	2017	14	0	0	0	-
	2018	64	5	6	7.8	0.09
	2019	9	0	0	0	0
Sockeye	2017	0	0	0	0	-
	2018	1	0	0	0	-
	2019	2	2	9	100.0	4.50
TSB	2017	1	0	0	0	-
	2018	26	21	92	80.8	3.54
	2019	0	0	0	0	-
All Species	**2017**	**1063**	**81**	**90**	**7.6**	**0.08**
	2018	**1032**	**69**	**149**	**6.7**	**0.14**
	2019	**1021**	**175**	**244**	**17.1**	**0.24**

A comparison of the calculated sea lice prevalence and abundance by site and month as determined for the Pre-Exposure chum salmon collected in Discovery Islands in 2017 – 2019.

Site	April						May					
	Prevalence(%)			Abundance			Prevalence(%)			Abundance		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Francisco Point	9.1	33.3	25.0	0.36	0.47	0.25	13.3	16.7	11.8	0.17	0.17	0.18
Marina Island	67.7	27.7	50.0	2.25	0.32	0.92	0	-	-	0	-	-
Rebecca Spit	0	0	28.6	0	0	0.50	14.8	-	44.4	0.19	-	1
SE Hill Island	-	-	0.0	-	-	0.00	19.0	50.0	33.3	0.19	0.50	0.67
Viner Point	-	-	-	-	-	-	-	-	25.0	-	-	0.42
Penn Island	-	-	-	-	-	-	16.7	100	100.0	0.20	1.0	2
Deepwater Bay	0	6.7	6.9	0	0.07	0.07	3.3	-	-	0.03	-	-
TOTALS	**28.9**	**22.5**	**25.0**	**0.97**	**0.28**	**0.41**	**12.9**	**41.7**	**32.6**	**0.15**	**0.42**	**0.63**

A comparison of the calculated sea lice prevalence and abundance by site and month as determined for the Pre-Exposure pink salmon collected in Discovery Islands in 2017 – 2019.

Site	April						May					
	Prevalence(%)			Abundance			Prevalence(%)			Abundance		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Francisco Point	12.5	13.3	0.0	0.16	0.17	0.00	-	7.1	-	-	0.07	-
Marina Island	62.1	53.8	37.5	1.69	0.92	0.88	-	-	-	-	-	-
Rebecca Spit	-	-	-	-	-	-	0	-	-	0	-	-
SE Hill Island	50.0	-	0.0	0.50	-	0.00	-	51.7	-	-	0.62	-
Viner Point	-	-	-	-	-	-	-	-	-	-	-	-
Penn Island	-	-	-	-	-	-	-	11.1	-	-	0.11	-
Deepwater Bay	0	3.3	6.9	0	0.03	0.07	-	-	-	-	-	-
TOTALS	**25.3**	**16.4**	**12.5**	**0.60**	**0.25**	**0.23**	**0**	**32.7**	**-**	**0**	**0.38**	**-**

A comparison of the calculated sea lice prevalence and abundance by site and month as determined for the Post-Exposure chum salmon collected in Discovery Islands in 2017 – 2019.

Site	April						May					
	Prevalence(%)			Abundance			Prevalence(%)			Abundance		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Raza	23.3	-	0.0	0.27	-	0.00	3.3	8.3	42.9	0.07	0.08	0.64
Raza North	0	0	43.3	0	0	0.53	0	0	71.4	0	0	1.18
Okisollo	3.3	0	-	0.3	0	-	10.0	50.0	6.5	0.10	1.0	0.06
Owen Bay	0	-	-	0	-	-	0	-	-	0	-	-
Beautiful Bay	-	0	0.0	-	0	0.00	-	-	0.0	-	-	0.00
Rock Bay	-	0	0.0	-	0	0.00	0	100.0	0.0	0	1.0	0.00
Discovery	17.2	0	11.4	0.21	0	0.14	22.6	17.1	38.7	0.26	0.17	0.55
Nodales	5.8	3.3	50.0	0.06	0.03	0.87	30.0	66.7	75.0	0.37	0.67	1.29
Shoal Bay	0	0	0.0	0	0	0.00	3.3	0	13.3	0.03	0	0.13
Fanny Bay	0	0	-	0	0	-	0	0	14.3	0	0	0.14
Bickley Bay	-	0	14.3	-	0	0.14	10.0	7.9	25.8	0.10	0.08	0.29
Cordero	0	16.0	-	0	0.16	-	0	10.8	30.6	0	0.11	0.44
Knox Bay	0	0	-	0	0	-	3.2	-	0.0	0.03	-	0.00
Bear Bay	0	0	0.0	0	0	0.00	0	3.2	-	0	0.03	-
Chancellor Channel	0	0	-	0	0	-	20.0	-	-	0.20	-	-
Race Passage	-	-	-	-	-	-	0	0	10.0	0	0	0.10
Wellbore Channel	0	-	3.3	0	-	0.03	-	-	0.0	-	-	0.00
Bessborough Bay	3.1	0	0.0	0.03	0	0.00	3.6	0	0.0	0.04	0	0.00
Sunderland	-	0	-	-	0	-	12.5	-	0.0	0.13	-	0.00
Blenkinsop Bay	0	0	-	0	0	-	0	0	0.0	0	0	0.00
Primary 3	3.0	-	0.0	0.03	-	0.00	-	-	0.0	-	-	0.00
Primary 1	-	0	0.0	-	0	0.00	3.3	-	0.0	0.03	-	0.00
TOTALS	**6.2**	**1.5**	**17.5**	**0.07**	**0.02**	**0.25**	**6.8**	**7.0**	**26.9**	**0.08**	**0.07**	**0.40**

A comparison of the calculated sea lice prevalence and abundance by site and month as determined for the Post-Exposure pink salmon collected in Discovery Islands in 2017 – 2019.

Site	April						May					
	Prevalence(%)			Abundance			Prevalence(%)			Abundance		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Raza	-	-	-	-	-	-	-	-	-	-	-	-
Raza North	-	0	-	-	0	-	-	0	-	-	0	-
Okisollo	-	-	-	-	-	-	-	-	7.1	-	-	0.07
Owen Bay	-	-	-	-	-	-	-	-	-	-	-	-
Beautiful Bay	-	-	0.0	-	-	0.00	-	-	0.0	-	-	0.00
Rock Bay	-	3.3	0.0	-	0.03	0.00	-	33.3	0.0	-	0.42	0.00
Discovery	0	-	8.0	0	-	0.12	13.3	-	16.7	0.17	-	0.17
Nodales	3.3	10.0	3.4	0.03	0.1	0.03	50.0	0	43.3	0.53	0	0.50
Shoal Bay	-	0	10.0	-	0	0.10	-	-	3.2	-	-	0.03
Fanny Bay	-	0	-	-	0	-	-	-	0.0	-	-	0.00
Bickley Bay	-	0	0.0	-	0	0.00	-	0	17.2	-	0	0.17
Cordero	-	10.0	-	-	0.10	-	-	0	25.0	-	0	0.38
Knox Bay	0	0	-	0	0	-	8.3	-	0.0	0.08	-	0.00
Bear Bay	0	16.7	0.0	0	0.17	0.00	0	6.7	100.0	0	0.07	1.00
Chancellor Channel	-	0	-	-	0	-	-	-	-	-	-	-
Race Passage	0	-	0.0	0	-	0.00	0	-	13.8	0	-	0.17
Wellbore Channel	-	-	-	-	-	-	-	-	-	-	-	-
Bessborough Bay	0	0	33.3	0	0	0.33	0	-	0.0	0	-	0.00
Sunderland	-	0	0.0	-	0	0.00	20.0	-	12.9	0.20	-	0.13
Blenkinsop Bay	-	0	-	-	0	-	-	-	-	-	-	-
Primary 3	0	-	13.8	0	-	0.14	-	-	100.0	-	-	1.00
Primary 1	0	3.3	0.0	0	0.03	0.00	0	-	-	0	-	-
2017 Lumped Sites*	0	n/a	n/a	0	n/a	n/a	11.8	n/a	n/a	0.21	n/a	n/a
TOTALS	**0.9**	**4.2**	**4.7**	**0.01**	**0.04**	**0.05**	**14.4**	**6.4**	**17.9**	**0.16**	**0.07**	**0.21**

[1] Sites with a capture total of less than 10 pink salmon were lumped in 2017. Lumped sites for the Post-Exposure pink salmon population included: Raza, Okisollo, Rock Bay, Shoal Bay, Fanny Bay, Bickley Bay, Wellbore Channel, Blenkinsop Bay

The number of sea lice by life stage and species identified on the chum salmon sample population from Pre-Exposure sites in Discovery Islands in 2017 – 2019. LEP = *Lepeophtheirus salmonis,* CAL = *Caligus clemensi*

Life Stage[1]	Number of Lice		
	2017	2018	2019
LEP Co	2	1	4
LEP C1	3	1	3
LEP C2	2	0	2
LEP PAM	1	0	1
LEP PAF	0	0	0
LEP AM	0	1	1
LEP AF	0	0	0
TOTAL LEP	**8**	**3**	**11**
CAL Co	25	4	0
CAL C1	52	25	21
CAL C2	5	3	17
CAL C3	3	0	4
CAL C4	1	0	2
CAL PAM	0	1	1
CAL PAF	0	0	0
CAL AM	0	0	4
CAL AF	1	0	2
TOTAL CAL	**87**	**33**	**51**

[1] 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 by life stage and species identified on the pink salmon sample population from Pre-Exposure sites in Discovery Islands in 2017 – 2019. LEP = *Lepeophtheirus salmonis* CAL = *Caligus clemensi*

Life Stage[1]	Number of Lice		
	2017	2018	2019
LEP Co	1	2	0
LEP C1	1	3	0
LEP C2	0	0	0
LEP PAM	0	1	0
LEP PAF	0	0	0
LEP AM	0	1	0
LEP AF	0	0	0
TOTAL LEP	**2**	**7**	**0**
CAL Co	29	2	0
CAL C1	22	18	6
CAL C2	1	5	1
CAL C3	1	2	2
CAL C4	0	1	0
CAL PAM	0	0	0
CAL PAF	0	0	0
CAL AM	0	1	0
CAL AF	0	2	0
TOTAL CAL	**53**	**31**	**9**

[1] 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 by life stage and species identified on the chum salmon sample population from Post-Exposure sites in Discovery Islands in 2017 – 2019. LEP = *Lepeophtheirus salmonis* CAL = *Caligus clemensi*

Life Stage[1]	Number of Lice		
	2017	2018	2019
LEP Co	6	4	23
LEP C1	3	7	32
LEP C2	10	4	57
LEP PAM	4	1	11
LEP PAF	0	1	11
LEP AM	0	0	0
LEP AF	0	0	0
TOTAL LEP	**23**	**17**	**134**
CAL Co	12	0	7
CAL C1	14	5	18
CAL C2	1	1	5
CAL C3	1	0	5
CAL C4	0	1	2
CAL PAM	0	0	1
CAL PAF	0	1	0
CAL AM	3	0	3
CAL AF	0	0	0
TOTAL CAL	**31**	**8**	**41**

[1] 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 by life stage and species identified on the pink salmon sample population from Post-Exposure sites in Discovery Islands in 2017 – 2019. LEP = *Lepeophtheirus salmonis* CAL = *Caligus clemensi*

Life Stage[1]	Number of Lice		
	2017	2018	2019
LEP Co	1	3	6
LEP C1	3	2	6
LEP C2	4	1	15
LEP PAM	3	0	5
LEP PAF	1	0	10
LEP AM	0	0	1
LEP AF	0	0	1
TOTAL LEP	**12**	**6**	**44**
CAL Co	4	2	0
CAL C1	7	6	10
CAL C2	4	1	2
CAL C3	0	0	2
CAL C4	0	0	1
CAL PAM	0	0	0
CAL PAF	0	0	0
CAL AM	0	1	1
CAL AF	0	0	0
TOTAL CAL	**15**	**10**	**16**

[1] 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 species of sea lice found on chum salmon collected at Pre-Exposure Sites in Discovery Islands in 2017 – 2019.

Site	Sample Month											
	April						May					
	Lepeophtheirus salmonis			*Caligus clemensi*			*Lepeophtheirus salmonis*			*Caligus clemensi*		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Deepwater Bay	0	0	0	0	2	2	0	0	1	1	0	2
Francisco	0	0	0	4	14	22	1	0	0	4	1	0
Marina Island	0	0	1	70	15	6	0	0	0	0	0	9
Penn Island	0	0	0	0	0	0	4	1	0	2	1	2
Rebecca Spit	0	0	0	0	0	0	1	0	5	4	0	0
SE Hill Island	0	0	0	0	0	0	2	2	3	2	0	7
Viner Point	0	0	1	0	0	1	0	0	0	0	0	0
TOTAL	**0**	**0**	**2**	**74**	**31**	**31**	**8**	**3**	**9**	**13**	**2**	**20**

The species of sea lice found on pink salmon collected at Pre-Exposure Sites in Discovery Islands in 2017 – 2019.

Site	Sample Month											
	April						May					
	Lepeophtheirus salmonis			*Caligus clemensi*			*Lepeophtheirus salmonis*			*Caligus clemensi*		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Deepwater Bay	0	0		0	1		0	0		0	0	
Francisco	0	0		5	5		0	0		0	1	
Marina Island	2	0		47	12		0	0		0	0	
Penn Island	0	0		0	0		0	0		0	1	
Rebecca Spit	0	0		0	0		0	0		0	0	
SE Hill Island	0	0		1	0		0	7		0	11	
Viner Point	0	0		0	0		0	0		0	0	
TOTAL	**2**	**0**		**53**	**0**		**0**	**7**		**0**	**13**	

The species of sea lice found on chum salmon collected at Post-Exposure Sites in Discovery Islands in 2017 – 2019.

Site	Sample Month											
	April						May					
	Lepeophtheirus salmonis			*Caligus clemensi*			*Lepeophtheirus salmonis*			*Caligus clemensi*		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Bear Bay	0	0	0	0	0	0	0	0	-	0	1	-
Beautiful Bay	0	0	0	0	0	0	0	0	0	0	0	0
Bessborough Bay	0	0	0	1	0	0	0	0	0	1	0	0
Bickley Bay	0	0	3	0	0	1	2	3	7	1	0	2
Blenkinsop Bay	0	0	-	0	0	-	0	0	0	0	0	0
Chancellor	0	0	-	0	0	-	1	0	-	0	0	-
Cordero	0	3	-	0	1	-	0	2	16	0	2	0
Discovery	3	0	3	3	0	2	3	3	11	5	3	6
Fanny Bay	0	0	-	0	0	-	0	0	1	0	0	0
Knox Bay	0	0	-	0	0	-	0	0	0	1	0	0
Nodales	1	1	17	0	0	9	6	2	24	5	0	7
Okisollo	1	0	-	0	0	-	0	1	1	3	1	1
Owen Bay	0	0	-	0	0	-	0	0	-	0	0	-
Primary 3	1	0	0	0	0	0	0	0	0	0	0	0
Primary 1	0	0	0	0	0	0	0	0	0	1	0	0
Race Passage	0	0	-	0	0	-	0	0	1	0	0	0
Raza	1	0	0	7	0	0	1	1	7	1	0	2
Raza North	0	0	9	0	0	7	0	0	33	0	0	0
Rock Bay	0	0	0	0	0	0	0	1	0	0	0	0
Shoal Bay	0	0	0	0	0	0	1	0	1	0	0	3
Sunderland	0	0	-	0	0	-	2	0	0	2	0	0
Wellbore Channel	0	0	0	0	0	1	0	0	0	0	0	0
TOTAL	**7**	**4**	**32**	**11**	**1**	**20**	**16**	**13**	**102**	**20**	**7**	**21**

The species of sea lice found on pink salmon collected at Post-Exposure Sites in Discovery Islands in 2017 – 2019.

Site	Sample Month											
	April						May					
	Lepeophtheirus salmonis			*Caligus clemensi*			*Lepeophtheirus salmonis*			*Caligus clemensi*		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Bear Bay	0	0	0	0	1	0	0	1	1	0	1	0
Beautiful Bay	0	0	0	0	0	0	0	0	0	0	0	0
Bessborough Bay	0	0	1	0	0	0	0	0	0	0	0	0
Bickley Bay	0	0	0	0	0	0	0	0	3	0	0	2
Blenkinsop Bay	0	0	-	0	0	-	0	0	-	0	0	-
Chancellor	0	0	-	0	0	-	0	0	-	0	0	-
Cordero	0	2	-	0	1	-	0	0	9	0	0	0
Discovery	0	0	0	0	0	3	2	1	5	3	4	0
Fanny Bay	0	0	-	0	0	-	0	0	0	0	0	0
Knox Bay	0	0	-	0	0	-	0	0	0	1	0	0
Nodales	1	1	1	0	2	0	7	0	8	9	0	7
Okisollo	0	0	-	0	0	-	0	0	1	0	0	0
Owen Bay	0	0	-	0	0	-	0	0	-	0	0	-
Primary 3	0	0	0	0	0	0	0	0	-	0	0	-
Primary 1	0	0	2	0	1	2	0	0	2	0	0	0
Race Passage	0	0	0	0	0	0	0	0	4	0	0	1
Raza	0	0	-	0	0	-	0	0	-	0	0	-
Raza North	0	0	-	0	0	-	0	0	-	0	0	-
Rock Bay	0	1	0	0	0	0	0	0	0	1	0	0
Shoal Bay	0	0	2	0	0	1	1	0	1	0	0	0
Sunderland	0	0	0	0	0	0	1	0	4	1	0	0
Wellbore Channel	0	0	-	0	0	-	0	0	-	0	0	-
TOTAL	**1**	**4**	**6**	**0**	**5**	**6**	**11**	**2**	**38**	**15**	**5**	**10**

A comparison of sea lice infestation rates on pink and chum salmon collected in Discovery Islands in 2017 – 2019.

Year	Sample Location and Species	*Caligus clemensi*			*Lepeophtheirus salmonis*		
		Prevalence	Abundance	Average Intensity	Prevalence	Abundance	Average Intensity
2017	Pre-Exposure chum (n=395)	8.4%	0.22	2.6	1.8%	0.02	1.1
	Post-Exposure chum (n=727)	3.9%	0.04	1.1	3.2%	0.03	1.0
2018	Pre-Exposure chum (n=123)	22.0%	0.27	1.2	2.4%	0.02	1.0
	Post-Exposure chum (n=599)	1.3%	0.01	1.0	2.8%	0.03	1.0
2019	Pre-Exposure chum (n=126)	21.4%	0.40	1.9	7.1%	0.09	1.2
	Post-Exposure chum (n=519)	6.4%	0.08	1.2	18.3%	0.26	1.4
2017	Pre-Exposure pink (n=173)	13.3%	0.31	2.3	1.2%	0.01	1.0
	Post-Exposure pink (n=277)	5.0%	0.05	1.1	4.0%	0.04	1.1
2018	Pre-Exposure pink (n=125)	19.2%	0.25	1.3	4.8%	0.06	1.2
	Post-Exposure pink (n=309)	1.9%	0.03	1.7	1.9%	0.02	1.0
2019	Pre-Exposure pink (n=40)	12.5%	0.23	1.8	0%	0	-
	Post-Exposure pink (n=)	3.2%	0.03	1.1	8.5%	0.09	1.1